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CONSERVATION OF RUBBER, FABRICS AND SOLVENTS.

"SAVING" is a shorter word, and backed up by deeds is true patriotism. As to the saving of crude rubber, American manufacturers are to-day wonderful rubber savers. Every known plastic, substitute and assistant, organic and inorganic, has been brought into use, and the resultant rubber alloys have not only produced more desirable goods, but have saved rubber by thousands of tons. And the manufacturers are ever on the alert for new and helpful plastics. Moreover, when the battling nations needed most of the zinc, the black tread tire and the maroon water bottle promptly reflected the conservation of zinc oxide. The same saving was also evident in scores of other directions.

That there are and ever will be further opportunities for saving of materials used in rubber manufacture, cannot be doubted. Of these, fabrics and solvents appear to offer the most fertile field for investigators.

As a single example, the use of cotton sheeting for cloth wrapping of rolls, hose and tires, involves a great waste, a waste that undoubtedly will cease if "cotton rationing" is carried out by the government.

As for solvent naphtha in spreader work, it can be recovered and should be. In the "making up" of rubber goods and in the sticking of "dry stocks," however, thousands of gallons of solvent go to waste. Not only is this true in rubber mills, but also in leather shoe factories where rubber cements are used in great quantities. Here it is mechanically impossible to gather the fumes and recover the solvent. What is needed, therefore, is a solventless cement, a dry cement, not brittle like gutta percha, but soft and tenacious, its adhesiveness brought out by heat, perhaps, and the solvent saved because it is not used at all.

MOBILIZING THE ARCTIC.

WHEN 300,000 pairs of arctics arrive at the training camps, and perhaps at the front, a truly American invention will find its first use in the war. To shoe men, the arctic calls up memories of the pioneers: T. C. Wales, "Buckle Joe" Hammond and Henry G. Tyer, of "Congress Arctic" fame. It also recalls the slow evolution of the clumsy, red lined one-buckle "artic" into the light, waterproof, well-fitting, three- or four-buckle, bellows-front product of to-day.

As an efficient protection against snow, slush and mud it is, as far as it goes (some 16 inches), without peer. It keeps the feet warm without "drawing them," and is easily put on and quickly laid aside.

The fifteen American footwear factories that have stopped other work and given preference to arctic production are exercising the best sort of practical patriotism.

THE STRIKE MENACE.

THE recent conference between the special mission from the British Ministry of Munitions and manufacturers in the various rubber trades was among the first of a series with employers and employes in all lines of industry, and should be productive of much good. England learned how to utilize labor at great cost and is frankly telling us her blunders that we may avoid a repetition of them. At first too many skilled workers in essential lines were sent to the front, and union labor regulations still further hampered production. Then came the munitions act to which both capital and labor assented, the trades unions patriotically agreeing to abandon all restrictive operations for the period of the war so that employers can make use of any kind of labor for any kind of employment.

It is well recognized that America is fast drifting into the same situation that faced England at the beginning of the war. Conscription has not been permitted to deplete skilled labor forces unduly, but labor appears to be

indifferent to the manufacturing needs of the nation and many strikes are occurring which militate against the production of war necessities. So acute has the situation become that both government officials and labor leaders admit that a complete understanding must be effected between capital and labor, or conscription of labor by the government must be resorted to. President Wilson voices the opinion of the nation when he states that the productivity of this country must be raised to its absolute maximum and that "nobody has a right to stop the processes of labor until all methods of conciliation and settlement have been exhausted." It seems inconceivable that American organized labor will fail to appreciate the justice of this or prove lacking in practical patriotism at this crucial time.

Under the patriotic leadership of President Gompers at the Buffalo convention, the American Federation of Labor without a dissenting vote reaffirmed its unswerving loyalty to the country and a determination to stand behind the national administration until peace comes. That organized labor appears to have swamped its pacifist element is heartening news to the country, and it is to be hoped that this pledge will not prove to be an empty phrase, but rather will henceforth insure uninterrupted production of wartime necessities. Capital has placed itself unreservedly in the hands of the government for the duration of the war and no other honorable course is open to labor, for the nation needs them both in order to win. The lack of one would paralyze the power of the other.

AMERICA'S TIRE OUTPUT WILL CONTINUE.

NO curtailment of the tire output seems likely to occur as a result of the announcement of the War Industries Board that the manufacture of automobiles for pleasure driving must be reduced 40 per cent next year in order that the steel and labor may be utilized in speeding up the production of ships, airplane motors, guns and projectiles. Over 4,000,000 cars now in operation in the United States will still require some 20,000,000 tires annually, and a great number of new trucks will be constructed to assist the railroads in short-haul business. For warefare the enormous production of airplanes, light trucks, ambulances and motorcycles, all equipped with pneumatic tires, has been greatly augmented, while the rapidly increasing number of heavy trucks and army tractors is creating a greater outlet for solid tires than ever existed before. Tire wastage due to hard usage and gun fire is enormous, and replacements will be a big item. Moreover, the Allies are depending upon America to supply a large proportion of their tire needs. This is shown by the fact that automobile tire exports, which amounted to only $3,943,000 for the fiscal year 1913, jumped to $17,936,227 for 1916, and were $12,330,221 for 1917, despite the fact that pleasure cars have nearly passed out of existence in England and France. To all appearances the American tire industry can look to the future with complacency so far as the demand is concerned.

AN UNFOUNDED APPREHENSION.

THE apprehension of invasion by American capital continues to trouble the rubber planters of the Far East. These enterprising pioneers have developed a great industry, and it is theirs to enjoy and to protect. The rubber manufacturers of the United States, their best customers, freely concede this. There are $250,000,000 invested in English rubber plantations, the small percentage of American capital invested being almost negligible, nor are there signs that it will ever be very large. The American cotton textile industry, with an invested capital of $900,000,000, dominates the cotton markets of the world. England is our best customer. The cotton trade of Lancashire, England, alone approximates $2,550,000,000 annually and largely depends on American cotton for existence. There are British investors in cotton plantations in the United States, but it does not worry the American cotton man. On the contrary, their "invasion" is welcome. How wonderfully the Golden Rule fits this case!

AS TO NEW ENTERPRISES.

THE Council of National Defense has made the wise and timely recommendation that until the world has peace no new industrial enterprises be undertaken which will not contribute to the efficient operation of the country's necessary activities. War is now the nation's business, and all else must be subordinated to it. Opportunities will not be lacking to utilize all available capital, labor and material, but they must be employed to the greatest possibe advantage for the common good. Vital necessities must be adequately supplied, and the manufacture of luxuries and non-essentials curtailed if necessary. Every resource that the country possesses and every effort it is capable of making should be devoted to the one great object of bringing the war to a speedy and victorious conclusion. Henceforth the acid test by which all new business undertakings are justified is to be: Will the money, men and material so employed contribute to the winning of the war?

IT WAS A GRACIOUS AND KINDLY THOUGHT THAT prompted President Firestone to invite the officers and the committees of the Rubber Association of America, of which he is the capable head, to visit Akron, and its consummation was in every way a success. Such visits emphasize not only the broadening scope of the work of the association, but draw visitors and hosts in even closer bonds of trade and individual amity.

FOR THE FIRST TIME IN THE HISTORY OF UNITED States trade the imports of raw materials have passed the billion dollar mark, and india rubber occupies second place in the list according to value.

What I Saw in the Philippines—VI.

By the Editor of The India Rubber World.

More about the Fertile Cotabato Valley—Rubber Planting on the Rio Grande Estates—An Englishman's Comment—Ex-President Taft's Speech at the Rubber Association Dinner—Bad Years in Rubber Planting—Analysis by an Expert in Philippine Affairs—Investment Figures—Present Labor Situation—Wages—Land Laws—Why Capital Holds Back.

IN the last installment I did not have space to say all that I wanted to about the Cotabato Valley nor the Rio Grande estates, that is, the pioneer planting in that part of Mindanao. As to the valley itself, a friend in Zamboanga likened it to the valley of the Nile in fertility and possibilities for future development. "With intelligent exploitation," said he, "it could produce rice for the whole of these islands, rubber for the whole United States."

This was, of course, a bit enthusiastic, but its possibilities are certainly immense.

To continue last month's tale, however, the splendid condition of the nursery of Para rubber trees which still exists on the Rio Grande estate proves clearly that the rainfall is ample for all purposes, as no Para rubber tree could exist in such a perfect state after having been woefully neglected for several years, unless the average rainfall was at least 80 inches per annum.

PRESIDENT TAFT ON BAMBOO RAFT ASCENDING THE ABRA RIVER, PHILIPPINE ISLANDS.

There is no difficulty in building up a steady labor force from amongst the natives (Moros) of the district, who prove good workmen if handled with tact and consideration. They are good agriculturists when working in their own holdings, and a local labor force could easily be augmented by importing Filipino laborers from Cebu and the other of the Visayan Islands, where labor is plentiful.

At one time the Rio Grande estate was reported to have an area of 750 acres under cultivation, partly with coconut trees and partly with Para rubber, of which latter cultivation 463 acres were supposed to exist, being planted 20 by 20 feet, *i. e.*, 108 trees per acre, and it was reported that 50,000 trees had been planted, the remainder of the open area being planted with coconuts in quincunx (32.8 by 32.8 feet, with an extra tree in the center) or 54 trees per acre.

Adverse reports were forwarded about soil being unsuitable, seasons adverse and rainfall insufficient. Eventually in March, 1915, a report was sent by cable that a devastating fire in the cogon grass had practically destroyed the major part of the cultivation.

The truth is that soil, seasons and rainfall are perfectly suitable for the cultivation of Para rubber. Undoubtedly some fires have taken place in the cogon and damage has been caused hereby. But the real damage on this estate was brought about neither by insufficient rainfall nor by fires. The failure is entirely due to neglect, ignorance and unskillful labor in the past, particularly during the time of the planting.

It is impossible to obtain good results by merely planting out coconut seedlings and Para rubber stumps in high grass and cogon, and casually ring-weeding them without any further attempt at cultivation. Even if no fires had taken place, it was impossible for the young trees to survive or bring any results, being completely stifled by Tek Bam and cogon grass. Out of the whole of the cultivated area, only the following survived:

22 acres planted with Para rubber trees in the northeastern part of the estate, near headquarters;

60.37 acres planted with coconut trees, partly near headquarters and partly in the southeastern corner of the estate.

In spite of the adverse treatment these trees received, their development and growth was by no means bad.

Several trees which show particularly good growth proved to have a circumference of 13 inches 3 feet from the ground, quite an excellent growth for trees only 32 months old.

The 22 acres of rubber mentioned above are perfectly healthy, there being no signs of *Fomes semitostus, Diplodia,* Pink Disease, canker or other diseases.

The pioneers, planters and experts talked what they knew, and that their conclusions are perfectly sound can hardly be gainsaid. Nor did I find in my chats anything to cause me to doubt the soundness of the foregoing conclusions.

I wish it were possible to impress upon others the actual truth concerning this marvelous group of Southern islands. Mindanao, for example, is fascinating in its bigness, its wonderful, comfortable, tropical climate. Nowhere may be found a greater variety of scenic wonders. Mountains, rivers, lakes and forests, plains, picturesque gorges, mammoth caves; orchids

and tropical flowers without number; fish, birds and game, big and little; a climate hot but not oppressive, and peoples as a whole friendly and of ever increasing interest. It is within one's choice to live where the thermometer is always above the eighties and the jungle is as dense as it is on the Amazon, or to climb to the uplands of pine and oak, where strawberries and fruits and vegetables of the temperate zone thrive. One can choose the low land, where the linen suit is comfortable the year around, or the high land, where wool and an open fire in the evening are necessary for comfort.

We do not know it, but we, the American people in general, and the rubber trade in particular, are wonderfully fortunate that we possess these lands.

HEVEA TAPPING KNIFE MADE BY NATIVE BLACKSMITH.

In the course of my trip I became acquainted with a very intelligent Englishman who knew the Philippines from Luzon to Tawi-Tawi. Said he to me one day: "Are you appraising your island possessions as a Republican or a Democrat?"

"I was born and bred a Republican," said I, "hence my nose is in the air. I condemn everything done by the Democrats, even if I know it is good. Also I dwell upon the constructive ability of the Republicans and emphasize the point that no Democrat creates anything but distrust."

"Bully! to use an Americanism," said he. "Your gentle irony convinces me that you are going on with an open mind. You will see remarkable things done by Republican and Democrat; things that all Americans should be proud of. And have you by any chance seen the speech of a former President of yours, Taft, at some sort of a rubber meeting in New York?"

I had not, and to my surprise he showed me a transcript of ex-President Taft's address at the 1917 dinner of the Rubber Association of America. I read it through and then read it again.

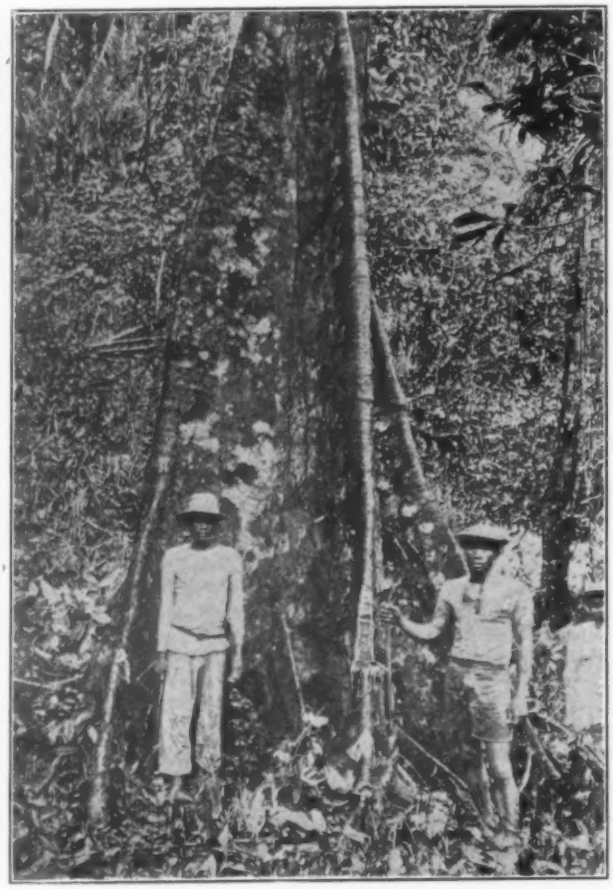
"A bit of a facer?" said the Englishman.

"What do you think of his conclusions?" I parried.

"Oh, I don't agree with him at all. He is predicting things because the party he distrusts is in power. It has been in power some time and nothing ill has happened. Indeed, the country has prospered as never before. I don't like your free and easy way of handling subject peoples, but you seem to win out. Certainly you have not failed yet."

As a long-time admirer of ex-President Taft, I disliked to criticise his speech or dissent from his conclusions, but he seemed to me to be misinformed to say the least. Just to bring the matter clearly before the reader it may be informing to re-read a portion of his utterances. Said he:

But we have tropical countries of our own in which rubber can be raised. Rubber is produced in some quantity in the Philippines. I was greatly interested in the subject when I was connected with the Government of Rhode Island, but unfortunately the policy of Congress, which we, as a commission, protested against, has very seriously interfered with the development of the industry there. Oppressed as Congress was by the popular fear of the power and monopoly of great corporations in this country, it allowed itself to be frightened into a policy in the Philippines that has worked greatly to the detriment of their people, to the detriment of this country, and increasing trade of those islands. The limitation contained in the fundamental act of the Philippines forbidding the acquisition of land by foreign corporations of more than 2,500 acres is an absurdity in a tropical country where sugar, rubber and other tropical products should be encouraged. The risks connected with tropical enterprises of that kind are very great. Everyone who is familiar with their working will appreciate the maxim; in five years of operation you have two bad years, one moderate year, and two good years, and that the destruction of bad years in the tropics is in proportion to the greater violence of natural forces in the tropics than in the temperate zone. The amount of land which ought to be cultivated in the Philippines as compared with the amount that is cultivated is so great that the acquisition of parts of it by great corporations could work no evil at all. It is a mere hobgoblin created by dangers of this country which find no counterpart in a retarded country like the Philippines. We did for twelve or fifteen years make great progress in the Philippines in many ways, but we might have made a great deal more progress in helping the people to better industrial conditions had we had the assistance of the capital which was available in the United States, and which adverse legislation kept out of those islands. I am very proud of the work which we did for fifteen years in giving them a good government and in bringing about a condition of prosperity there; in giving half of their school population an opportunity for an education; in giving them law and order; in giving them a good currency; in giving them a good administration of justice; in giving them good health. But all these things were made possible by the building up by a great civil service builded and strengthened by a body of Americans, the like of which I think we have never had in our government before. The present policy in the Philippines has been to drive out of the service of the Philippine Government all those American civil servants; and we have turned the islands over to Filipino politicians and to a control that, after the impulse of a good government which they have had shall be exhausted, will result in inefficiency and corruption and produce a discontent that will ultimately plague us, responsible as we are for the welfare of the Philippine people. It will create a political situation in which bribery and blackmail



HUGE FOREST TREE, MANDANAO.

will become a feature in every great business projected there. It will make investments of capital less likely and will help neither the people of the islands nor the business of the country. These are the reasons why the rubber industry has not flourished in the Philippines. I wish it could have been otherwise.

As to the subject matter of this speech, personally I am going to challenge but one statement and then pass the rest of it on

PATANI BEAN COVER FOR HEVEA.

to another. Is it true in rubber planting that "in five years of operation you have two bad years, one moderate year and two good years?" Without argument, this is absolutely not so. The rubber crop, once the tapping stage is reached, is first year good, each succeeding year better, as the trees mature.

Coming to the rest of the statements, lest I be prejudiced, I received a statement from one who went to the Philippines at the same time that ex-President Taft did, and who has remained there until the great war broke out. Said he:

Mr. Taft's speech evidently had a disastrous effect among the rubber manufacturing people, who are the people who should be interested in securing their own supply at as low a price as possible, and protecting their plant investments in the United States. Personally, I don't think that he was qualified to make the statement that he did relative to the rubber possibilities. His speech may have been dictated by an unfortunate rubber investment made by the Goodyear people in Lebak Bay, Cotabato Province, about 15 years ago. They evidently had the foresight to see the failure of wild rubber, and tried to forestall this shortage by cultivating rubber at that time. They were evidently approached at a psychological moment by an ex-constabulary officer of the Philippine Islands, whom they intrusted to expend their money in what promised to be a large and profitable development. This

HUGE BAMBOO WATER WHEEL.

Revolved by the river current, it lifts the water in bamboo buckets attached to the shore-side of the wheel, and empties it into a trough connecting with a series of large horizontal bamboo pipes, supported near the top of perpendicular poles, whereby the water is delivered to the fields for irrigation purposes.

agent, after he reached the Philippines, seemed to devote his energies to spending the money in everything except rubber, and, by the time that he was finally checked, had made little or no progress in the work which he was sent out to do. The expense had been so great that they abandoned the project then and there. Also, one of our agricultural experts, belonging to the Philippine Insular Government, without sufficient evidence, made a very adverse report in 1912, stating that rubber could not be grown successfully in the Philippines. The data upon which he had based his conclusions was afterwards discovered and found to be absolutely incorrect.

The consensus of opinion of the investors in the Para rubber development in the Philippine Islands, who have made periodical visits to the rubber producing country further west, is that rubber can be produced, by using modern efficiency methods, as low as 20 cents a pound, and easily below 25 cents a pound. The estimated cost to bring 2,500 acres of Para rubber into a producing state in the Philippine Islands, excluding New York charges and exceptional extraordinary welfare work, and, assuming that this area will be put under cultivation in two years, is $400,000, or $160 an acre. Such a plantation should produce from four tons in its fifth year, and 200 tons in its seventh year, to 1,000 tons in its fifteenth year, and have an increasing production at the rate of about 100 tons a year. This estimate of cost includes the factory with its machinery—steam or hydroelectric with washers, macerating, crêping, finishing mills, drying system, smoke house, saw mill, box factory, repair shop, plantation store, storehouse and wharves. If it is decided to establish irrigation, the cost will be dependent upon the site chosen. A great many locations available now have hydroelectric power and gravity irrigation systems that can be constructed at a very low figure. This estimate is made with a thorough knowledge of the construction and development work as it is carried on in the

MORO HOUSES, JOLO.

Philippines and with the knowledge that the largest rubber plantation in the Philippines, which was started in virgin forest, entailing the highest possible clearing cost, was brought into production upon this basis. Labor prices, at that period, were higher in Mindanao and Sulu than they are today, due to the fact that this whole department had been under military control for twelve years, where the policy was to obtain quick results, while the matter of cost was of secondary importance, so that special inducements which, in this case, meant high labor cost, were given to the laborer. The three years administration of this area under Department Governor F. W. Carpenter has resulted in a reduction of the labor cost almost 35 per cent, and this reduction work is still going on, due to the large influx of northern laborers into this area. Another aid to a better labor condition is due to the fact that the Pagans and Moros, who were formerly in a state of war, and were not available as labor, are now leaving the interior forests and hiding places, and settling around the big centers or establishing centers in these interior sections.

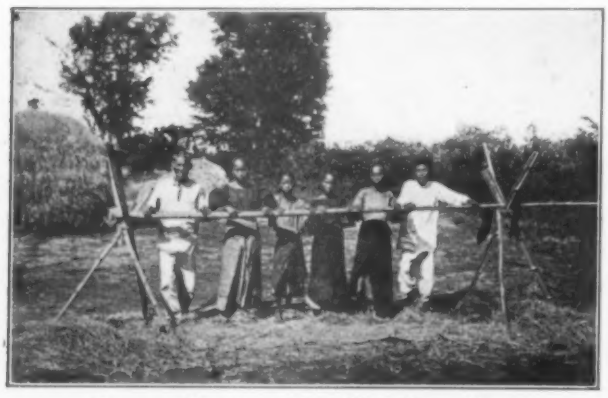
The labor situation is very favorable in comparison with other rubber countries, or possible countries. The Philippines, as far as I know, is the only tropical country where labor is being exported. To make this situation even better, the Bureau of Insular Affairs, United States War Department, has forwarded an amended immigration bill to the Philippine Government for action. This bill, if passed by the Philippine Legislature, which seems very probable in their present attitude towards the development of the economical resources of the country, will allow the entry of Chinese, Japanese and other labor, under conditions

much more advantageous than pertains to the rubber countries further west, and should stabilize the future labor situation, inasmuch as it will permit naturalization of this imported labor. Personally, I have had over twenty years' experience with the labor problems in the Hawaiian Islands, Cuba, Borneo and the Philippines, and I can state that the labor situation in the Philippines is one that need not worry capital, if they are wise enough

CARABAO CART, USED FOR GENERAL TRANSPORTATION.

to secure men to administer their investments, who have had a previous experience with this labor. In my fourteen years' experience in the Philippines, in several of the largest contracts ever executed in those islands, I have had opportunity to create large organizations in a very short period to complete work of immediate necessity, and have never had any difficulty in securing plenty of efficient labor.

Present wages vary from $0.15 to $0.40 a day, dependent on age and sex, also upon the class of work performed. Though apparently higher than in the contiguous rubber countries to the West, it is believed to be lower, due to the fact that there are no importation or repatriation costs, stamps, registration, transportation to and fro, etc., to meet for the laborers. The Department Governor of Mindanao and Sulu, for the last two years, has been introducing Philippine labor from the provinces of the north into that section, in order to prevent any excess labor price due to shortage or other local reasons. He has two inter-island steamers that are making regular trips to the northern provinces with lumber and other products of the South, which always return laden with laborers. Whereas in former years the inhabitants north of Mindanao always stood in terror of the Moros of the South, today the slogan of the northern part of the Philippine Islands is "go South," and all local transportation is fully occupied in responding to this cry.



FILIPINOS THRESHING RICE WITH THEIR FEET.

The present land laws permit an individual or a corporation to lease 2,500 acres of public lands, and a corporation can purchase if desired. The lease is for twenty-five years, with a twenty-five year renewal privilege. The leasing cost is $0.10 an acre a year. The purchase is by advertising and submitting bids. The general purchase price is the minimum of $2.00 an acre, with five years to complete payment.

An amended land law now ready for the action of the Philippine Government will allow leases for sixty-six years, with an optional extension of thirty-three years. The lease cost is 3 per cent of the appraised value at time of leasing and runs for twenty years. A new appraisal is made by the Governor General every ten years afterwards. This land law also provided that any unoccupied land may be developed in large quantities by interests which will show that they are in there for business."

Speaking of his own knowledge of the attitude of large American rubber corporations and of one company in particular, he said:

This company seems to be very desirous of starting a secondary plantation in the Philippine Islands, but cited the following three things which they wish some governmental assurance on before going further into the matter:

1. Instability of the Philippine Government.
2. Land tenures.
3. Labor conditions.

They do not see their way clear to make the large investment necessary, which they estimated would be about $25,000,000, until they could acquire a prior title to, or a long lease to at least 100,000 acres; an assurance of United States governmental protection of their investment, and a Philippine Government assurance of protection from local riots and labor troubles, as well as a guaranty of a stable governmental policy in the Philippines. Strange to say, the ——— Rubber Co., which had been making inquiry through Congressman ———, cited almost exactly the same conditions which prevented them from going further into

GETTING READY TO BURN.

the matter of the Philippine development of Para rubber. The feeling as expressed by these two important companies seem to be general among different rubber men of New York and Boston. I discovered that this attitude appeared to have developed from a speech made by ex-President Taft last January in New York at a convention where the principal rubber manufacturers of the United States were gathered.

RUBBER THE GREATEST WAR HOSPITAL NEED.

In a recent article for the "New York American," Dr. Woods Hutchinson, the eminent physician and author, writes that rubber is to-day the greatest need in all war hospitals, and that cotton—absorbent cotton and gauze for dressings—ranks second. Tires for ambulances, and rubber gloves and tubing for irrigating wounds, he states, have done more to lessen the sufferings of the wounded than any other things in this war. The enormous demand for rubber to maintain the tire supply, and for cotton to manufacture deadly explosives, continues to render it increasingly difficult to maintain adequate surgical supplies.

Dr. Alexis Carrel's system of irrigating wounds with Dr. Dakin's antiseptic solution has already been described in THE INDIA RUBBER WORLD. A complete equipment, including about five yards of tubing, flasks, nozzles and clips costs somewhat less than $3 per patient and lasts a month. By its use large wounds are healed with only small scars; the time of healing is shortened about one-half; the percentage of amputations is greatly reduced; suffering is minimized.

War News of the Rubber Industry.

Second Liberty Loan a Triumph—Rubber and Allied Trades Subscriptions—Signs and Window Displays—Service Flags—Charles Piez to Build American Ships—Fireproofing for Aircraft—Army Rubber Footwear—A Military Trench Pump Outfit—Goodrich Expedites Airplane Wheel Production—Aeronautics Taught at Goodyear Factory—H. Stuart Hotchkiss Enters the Army—Service Personals—The Rubber Trade Roll of Honor.

SECOND LIBERTY LOAN A TRIUMPH.

THE second Liberty Loan, like the first, was a distinct triumph. The call for $3,000,000,000 was oversubscribed 54 per cent, or a total of $4,617,532,300, and all of the excess has been accepted, making the actual total of bonds to be issued $3,808,766,150. All subscriptions for $50,000 and less, or 99 per cent of the total 9,400,000 subscriptions, have been allotted in full. The third drive will probably occur in late February or early March, and Liberty Loan committees are urged to maintain their organizations for assistance at that time.

Once more the rubber industry rose nobly to the task, and in most instances subscriptions were larger than for the first loan. Governor Aiken's committee of New England manufacturers, on which Frederic C. Hood represented the rubber industry of the First Federal Reserve District, was again active and achieved splendid results. The list of firms from which returns have been received follows:

	No. of Subscribers.	Total Subscriptions.
Acushnet Process Co.	30	$7,000
American Mills Co.	328	28,350
American Wringer Co.	39	2,400
American Steel & Wire Co.	683	76,150
Anchor Webbing Co.	...	18,500
Apsley Rubber Co.	...	25,000
Atlantic Rubber Co.	3	200
Archer Rubber Co.	5	5,800
Ansonia Oil Cloth Co.	300	18,150
Bailey, C. J.	5	5,500
Baumann Rubber Co.	7	400
Beacon Falls Rubber Shoe Co.	165	14,100
Blakesley Novelty Co.	3	250
Boston Belting Co.	164	15,100
Boston Insulated Wire & Cable Co.	10	5,150
Boston Rubber Shoe Co.	1,138	62,850
Boston Woven Hose & Rubber Co.	729	100,000
Bourne Rubber Co.	...	6,500
Carr Co., F. S.	...	10,000
Carton Belting Co	...	25,500
Clapp Rubber Co., E. H.	50	4,050
Colton Elastic Web Co., Geo. S.	...	22,000
Conant, Houghton & Co., Inc.	7	21,100
Converse Rubber Shoe Co.	...	25,450
Crocker Rubber Co.	2	100
Crandall Packing Co.	6	600
Clifton Manufacturing Co.	17	12,500
Danversport Rubber Co.	...	10,000
Davidson Rubber Co.	35	11,550
Davol Rubber Co.	225	25,100
Easthampton Rubber Thread Co.	25	2,950
Elastic Tip Co.	4	1,200
Electric Cable Co.	39	15,800
Everlastik, Inc.	125	12,000
Feinberg Co., David	2	20,050
Ferdinand & Co., L. W.	...	2,000
Fisk Rubber Co.	5,121	1,000,000
Fitchburg Rubber Co.	1	50
Franklin Rubber Co.	...	3,500
Garlock Packing Co.	4	350
Globe Rubber Works, Inc.	8	1,550
Goodrich, The B. F., Co., Providence, R. I.	5	500
Goodrich, The B. F., Co., Worcester, Mass.	1	100
Granite State Rubber Co.	1	100
Glendale Elastic Fabrics Co.	259	43,850
Gutta Percha & Manufacturing Co.	5	1,300
Goodyear Rubber Co., Middletown, Conn.	63	28,000
Alfred Hale Rubber Co.	5	1,200
Hardman Tire & Rubber Co., Boston	4	200
Hauthaway & Sons, Inc., C. L.	5	5,750
Hazen Brown Co.	...	25,000
Hanover Rubber Co.	3	250
Hood Rubber Co.	...	612,000
Hartford Rubber Works Co.	750	46,500
Oliver R. Howe	3	300
Hope Rubber Co.	16	1,850
Hardman Tire Co., Providence, R. I.	3	150
Johns-Pratt Co.	116	40,500
Killion Rubber Co.	10	5,350
Lowell Insulated Wire Co.	16	20,800
Lawrence Rubber Co.	5	350
Lynn Rubber Manufacturing Co.	7	400
Lapworth & Sons, William	6	6,700
Monnier, Ernest	...	1,000
Monatiquot Rubber Works Co.	...	5,500
Meade Rubber Co.	...	700
Mason, Joseph	1	200
Mechanical Fabric Co.	26	1,900
Mayflower Rubber Works Co.	...	10,000
Mutty, L. J., Co.	15	8,000
National India Rubber Co.	363	20,000
Narragansett Rubber Co.	...	10,000
New England Cable Co.	34	7,700
Omo Manufacturing Co.	69	3,900
O'Bannon Corp.	15	1,650
Plymouth Rubber Co.	77	10,000
Rubber Regenerating Co.	658	43,450
Reading Rubber Manufacturing Co.	65	14,650
P. L. Rider	4	6,150
Republic Rubber Co., of Massachusetts	10	1,500
Seamless Rubber Co.	170	11,450
Simplex Wire & Cable Co.	296	17,050
Standard Woven Fabric Co.	100	5,000
Tyer Rubber Co.	140	8,350
Taunton Rubber Co.	2	250
U. S. Tire Co., Portland, Maine	3	2,600
U. S. Tire Co., Worcester	5	5,250
U. S. Rubber Co. of N. E. (280 Summer street, Boston)	40	2,800
U. S. Rubber Co., Worcester	6	5,250
U. S. Rubber Co., Springfield	38	7,800
Wood Elastic Web Co., J. W.	...	18,050
Woonsocket Rubber Co.	1,009	64,000
Whitney Blake Co.	105	167,000
Waitt Cement Co.	3	600

Of the many company campaigns among employes, none was better conceived nor more energetically carried out than that of the Fisk Rubber Co., Chicopee Falls, Massachusetts. Through the factory newspaper, "The Fisk Bulletin," the

A BIG STORY OF PATRIOTISM.

loan was explained and an appeal to subscribe was made in four languages. A well-organized campaign committee then canvassed the entire plant in a seven-day drive, during which enthusiasm was kept up by daily returns on the large billboard outside the office building. The accompanying illustration of it speaks for itself and shows how the results were tabulated and the final total announced. The percentage of subscriptions cannot be equalled by many rubber factories in the country.

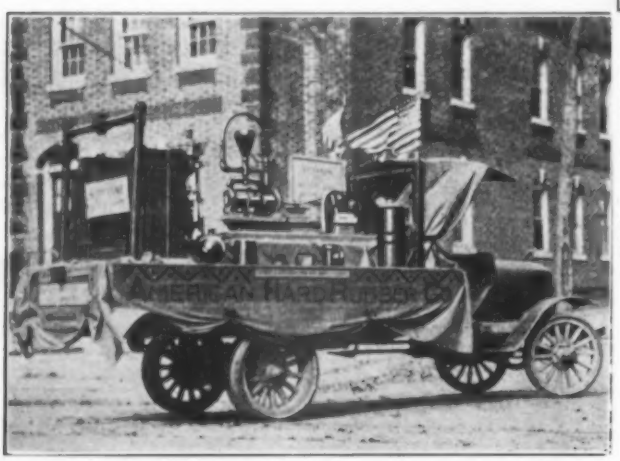
In the Second Federal Reserve District, embracing New York City, the Rubber Trades Committee, headed by J. H.

Cobb, made the phenomenal record of securing subscriptions totaling $5,554,650 from October 19 to 27, in a district where the percentage of the country's rubber factories is small. Much credit is due A. W. Archer, secretary of the committee, as he devoted practically his entire time to the work.

U. S. RUBBER BOND REDEMPTION.

Colonel Samuel P. Colt, president of the United States Rubber Co., New York City, has announced that $7,000,000 out of about $12,000,000 of outstanding bonds of various issues, which the company recently offered to redeem over a year in advance of maturity, has been surrendered, and much of the proceeds, he believed, had been put into Liberty Bonds.

To help the Liberty Loan Committee, at Akron, Ohio, members of the Goodyear Tire & Rubber Co.'s Sales School offered their services to the authorities and asked for assignments of territory in which to work for an evening. The advantages of training in methods of selling soon appeared in the shape of subscriptions amounting to $20,000. One salesman sold his first bond to a fellow-jitney passenger while on the way to his assigned territory. Guy Mills, of the Goodyear Boy Scout troop, attained the highest Boy Scout record, having disposed of 66 bonds, totaling $23,000.



AMERICAN HARD RUBBER CO.'S FLOAT IN THE NEW YORK LIBERTY LOAN PARADE.

RUBBER AND ALLIED TRADES SUBSCRIPTIONS.

Among the many other subscriptions not already listed which have been reported are the following:

United States Rubber Co., New York City (Employes $1,500,00 of the total.)	$4,000,000
United States Rubber Reclaiming Co., Inc. (Officers and employes $110,000 of the total.)	310,000
New Jersey Zinc Co., New York City	1,000,000
Westinghouse Electric & Manufacturing Co., Schenectady, New York (Employes $2,230,000 of the total)	4,730,000
Link Belt Co., Chicago, Illinois	269,000
General Electric Co., Schenectady, New York (employes)	1,400,000

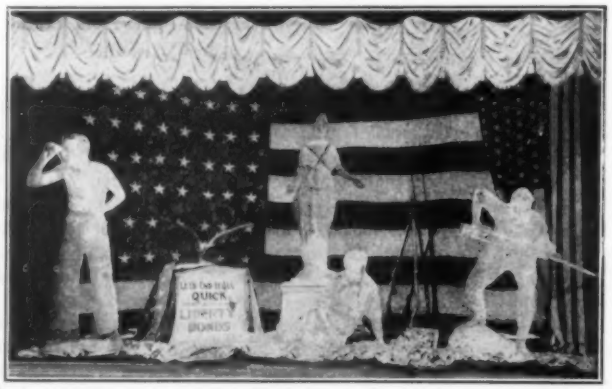
The staff of THE INDIA RUBBER WORLD subscribed a total of $23,150 for the second loan.

SIGNS AND WINDOW DISPLAYS.

Among the acts of patriotism showing the spirit which is now actuating the American rubber industry may be mentioned the signs and window displays which leading companies voluntarily devoted to the sale of Liberty Bonds.

The Sterling Tire Corp., Rutherford, New Jersey, donated one of its most prominent billboards on the roof of a five-story building at the corner of Broadway and 57th street, New York City, and had it painted in red, white and blue, with the message "The Plain Duty of Every American—Buy a Liberty Bond." Conspicuous by day, this sign was brilliantly illuminated at night and attracted the attention of all who passed.

Besides subscribing approximately one-fifth of Akron's quota to the Liberty Loan, officials and employes of The B. F. Goodrich Co. installed several handsome window displays in local stores to stimulate bond purchases. So great attention did they receive that much of the success of the Akron campaign is attributable to them.



A GOODRICH WINDOW DISPLAY IN AKRON.

SERVICE FLAGS.

Service flags at factories and offices of manufacturers of rubber goods are on the increase, showing that the industry is contributing not only money but many men to the cause of liberty. Over the doorway of the offices of the United States Rubber Co., New York City, hangs a service flag bearing 1,544 stars. At Watertown, Massachusetts, the large service flag recently raised on the factory of the Hood Rubber Co. displays 350 stars. The Firestone flag recently unfurled

UNITED STATES RUBBER CO.'S SERVICE FLAG.

over the entrance of the main building at Akron has 721 stars.

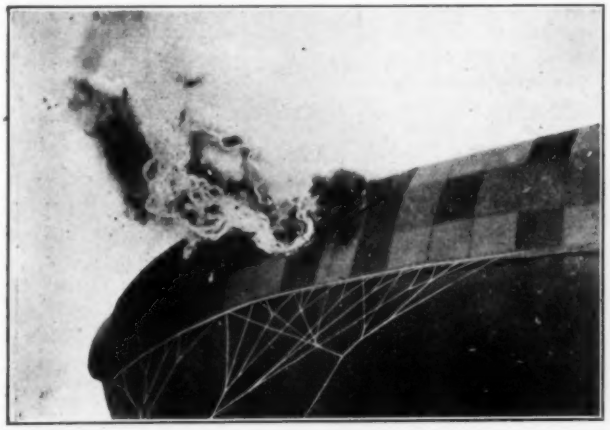
At the Hood factory a war relief committee has been organized, and more than 1,000 employes have promised to give part of their spare time to help their enlisted comrades at camp in America or "over there." Subscriptions have been taken for a fund to supply Christmas presents for these men.

CHARLES PIEZ TO BUILD AMERICA'S SHIPS.

Charles Piez, president of the Link Belt Co., Chicago, Illinois, manufacturer of silent chain drives for rubber mills and many other purposes, has been appointed vice-president of the Emergency Fleet Corporation by Chairman Edward N. Hurley, of the United States Shipping Board. Admiral W. L. Capps, who has designed the ships to be built and laid the plans for their construction, has recently resigned as general manager; however, the entire responsibility for speeding up the execution of these plans has been placed in the hands of Vice-President Piez. That he will shoulder this great responsibility with energy and efficiency is indicated by his past record as an industrial organizer.

FIREPROOFING FOR AIRCRAFT.

Parker R. Bradley, who has been known to the rubber trade for many years through his production of a variety of near-



International Film Service. Courtesy of Popular Science Monthly.
EFFECT OF SHELL FIRE ON A DIRIGIBLE.

rubbers and plastics, such as Keratol, is at work on balloon "dope." It is said that he has discovered a varnish that will make such accidents as that shown in the illustration an impossibility as far as inflammability of the gas envelope is concerned. His varnish has also been successfully applied to airplane parts, rendering them practically incombustible.

ARMY RUBBER FOOTWEAR.

Rubber footwear manufacturers are cooperating to the fullest extent with the Government in equipping the armies of the United States and the Allies with waterproof trench boots, arctics and gaiters.

Before the creation of the Council of National Defense, which now exercises the power of purchasing agent for the Government, American rubber companies supplied 900,000 pairs of rubber boots to France. Since the formation of the council, orders have been placed for 200,000 pairs of hip rubber boots for England and 400,000 pairs of short rubber boots for France. Belgium has received 7,200 pairs of hip boots and 6,000 pairs of short boots.

Upon the entrance of the United States into the war, a demand for 300,000 pairs of rubber boots for American troops was immediately created. Many rubber companies at once voluntarily turned over their entire daily output to the Government, in some instances deferring lucrative private contracts in order that the sudden demands of the expeditionary forces in France might be met. Officials of the Council of National Defense have been unstinting in their praise of the hearty cooperation of the rubber industry.

Altogether, during the war, orders aggregating 1,813,200 pairs of boots have been placed with American rubber footwear manufacturers for the use of allied and American armies. At an average price of $3.32 per pair, this would involve a total expenditure of $6,019,824.

A MILITARY TRENCH PUMP OUTFIT.

The conditions of this war differ greatly from any former one. Trench fighting and trench living are a product of twentieth century strategy. Packing into narrow slits in the earth is uncomfortable enough in the best and dryest weather, but when these are turned to ditches with inches, or even feet of mud and water, the conditions are almost unbearable. Here is where the rubber trade comes to the rescue. To pump out this water and mud, suction hose is a necessity second only to the proper pump. And the proper pump is one which can be worked by the men in the trenches, unseen by the enemy and protected from hostile sharpshooters. The pump must be one which will not become clogged with the sand or gravel which is sucked up with the water. A piston pump will not answer these requirements, but here again rubber comes to the rescue. The pump now used, the invention of George Loud, of Boston, is known as the Edson pump. It is globular in shape, with a diaphragm of strong duck heavily frictioned. This pump can be carried by one man, while his companion can carry the two 25-foot lengths of hose, which may be interchangeably used for suction or discharge. When set up, the pump can be effectively worked by two men. As to its capacity, a trial at a military camp near Boston resulted in draining a two-foot depth of water in 25 feet of trench in a little more than two hours, two pumps being used. A plunger or piston pump would have become clogged under such a test, and for its effective working, previous to such clogging, the men would have been obliged to work above the level of the discharge pipe.

COMPLETE DIAPHRAGM TRENCH PUMP OUTFIT.

GOODRICH EXPEDITES AIRPLANE WHEEL PRODUCTION.

How completely rubber and other great industrial companies have placed their resources and ingenuity at the disposal of the government for war purposes is shown by a recent act on the part of The B. F. Goodrich Co., Akron, Ohio.

The Palmer rim and wheel are at present used on all British

aircraft, and their recent adoption by the Society of Automotive Engineers for American airplanes marks an important step toward the contemplated unification of all military equipment on the western front. Under this plan, in the event of an accident to either a British or an American machine, a shattered wheel can immediately be replaced by a standard one wherever the machine is obliged to land back of the lines. The B. F. Goodrich Co. is the sole licensee of the Palmer rim and wheel in this country and has sent plans and specifications to all the leading wheelwrights and rim makers in order that production may be hastened.

AERONAUTICS TAUGHT AT GOODYEAR FACTORY.

The Goodyear Tire & Rubber Co., Akron, Ohio, has started a factory school for the purpose of instructing its employes in aeronautics. This course will occupy two evenings a week and will incorporate a considerable amount of mathematics. For this reason all applicants must have had a high school course or its equivalent and a small tuition fee is required to cover necessary expenses. This course was deemed necessary, as the Goodyear company is manufacturing a large amount of material for the signal corps, and hence its employes, if specially trained, would be of great value to the government..

H. STUART HOTCHKISS ENTERS THE ARMY.

Ever patriotic and generous of his time in public service, H. Stuart Hotchkiss has entered the service of the United States and has been commissioned Captain in the Aviation Section of the Signal Corps, and assigned Chief of Supplies Inspection. He resigned from the presidency of the General Rubber Co. upon entering the service, but is still president of the Naugatuck Chemical Co., vice-president of L. Candee & Co., and a member of the Operating Council of the United States Rubber Co. He has moved his family from New Haven to Washington, D. C., where he will be stationed for the present. Mr. Hotchkiss is first vice-president of the Rubber Association of America and, as a representative of that organization, has given much of his time to national affairs. While his companies suffer a great loss through the change, the government makes a corresponding gain in securing the services of a man of his knowledge and experience.

SERVICE PERSONALS.

Arthur W. Stedman, Jr., the only son of Arthur W. Stedman, manager of the crude rubber department of the Hagemeyer Trading Co., New York City, is a first lieutenant in the Sixth United States Infantry, stationed at Chickamauga Park, Georgia.

HENRY LELAND RYDER.

Henry Leland Ryder, orderly for Brigadier General Trent, 51st Infantry Brigade, is a son of Frederick T. Ryder, of the United States Rubber Co.

Frank R. Bacon, president of the Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin, who was appointed a captain in the industrial reserve early this year, has been detailed to active service as general supervisor of the execution of government contracts for the manufacture of machine guns at New Haven, Connecticut, with the rank of major. Because the new duties require his entire time, Major Bacon temporarily has relinquished active connection with the Cutler-Hammer company.

Herbert Du Puy, chairman of the board of the Pennsylvania Rubber Co., Jeannette, Pennsylvania, has two sons in the army, Lieutenant H. Wilfred Du Puy, president and treasurer, and Major Charles M. Du Puy, vice-president of the Pennsylvania Rubber Co. Seneca G. Lewis, general manager of the company, the composer of "Columbia," a patriotic march, has assigned all the royalties and profits resulting from sales to the New York Sun Tobacco Fund to buy smokes for the Sammies in France. On November 24, $1,245.25 had been turned into the fund.

Courtesy of "The Sun," New York.

MAJOR CHARLES M. DU PUY.

CAPTAIN H. STUART HOTCHKISS.

Copyright—Harris & Ewing, Washington, D. C.

LIEUTENANT H. WILFRED DU PUY.

Herman T. Kraft, formerly in the aeronautical department of the Goodyear Tire & Rubber Co., Akron, Ohio, has been appointed an aeronautical engineer in France.

W. J. McCarthy, assistant chemist of the Panther Rubber Manufacturing Co., Stoughton, Massachusetts, has resigned to accept a position in the United States Government Food Laboratory at Cincinnati, Ohio.

David M. Goodrich, son of the founder of The B. F. Goodrich Co. and member of the directorate of the company, has received the highest recognition army boards can give to men entering the army from civilian life.

Mr. Goodrich topped the list of 3,000 candidates for commissions at the officers' training camp at Plattsburg, New York, and has been awarded a commission as major in the infantry.

At the outbreak of the Spanish-American war he enlisted under the standard of Colonel Roosevelt with other Akron boys and went to Cuba with the Rough Riders, taking part in the storming of San Juan hill and El Caney. Mr. Goodrich is now president of the National Rough Riders' Association.

John J. Pell, brother of George E. Pell of Pell & Dumont, has safely arrived in France with his regiment, the 165th United States Infantry, formerly the 69th New York.

E. C. SHAW.

E. C. Shaw, general manager and vice-president of The B. F. Goodrich Co., was appointed by Governor James M. Cox, November 19, to serve as director of a committee to look after the welfare and recreation of all Ohio troops during the period of the war.

With other members of the committee, Mr. Shaw went to Camp Sheridan, Montgomery, Alabama, on the following Friday. Two Akron companies of the Ohio National Guard, a machine gun company and a unit of the hospital corps are stationed at the camp. Many former employes of local rubber companies volunteered in these units.

Mr. Shaw later stopped at Camp Sherman, Chillicothe, Ohio, where nearly 3,000 Akron boys are stationed. At both places arrangements were made for furnishing the soldiers with wholesome amusement during the winter months.

The accompanying illustration shows George E. B. Putnam, of THE INDIA RUBBER WORLD, soliciting subscriptions to the "Flag Fund" in the rubber and leather footwear district of Boston. The flag shown is a remarkable piece of needlework made by Mrs. Chute, over 70 years of age, a lineal descendant of Peregrine White, the first white child born in New England. Mrs. Chute started making this flag the day war was declared with Germany. It is to be disposed of by ticket and it is hoped that a fund of $5,000 will be raised before Christmas; this sum to be used to provide comforts for the soldiers at Camp Devens, Ayer, Massachusetts.

THE RUBBER TRADE ROLL OF HONOR.

BOSTON BELTING CO., BOSTON, MASSACHUSETTS.

U. S. INFANTRY.

James McCarthy,	Jean Eagan,	Michael Brack,
Thomas MacGowan,	Austin Deveney,	Ernest Forest,
Arthur McCauley,	Herbert McLain,	Patrick Tierney.
James O'Toole,	Albert Powers,	
John Colpit,	John Connors,	

NAVAL RESERVE CORPS.

Frank O'Brien,	Henry Lewis,	G. C. Forrest.
James Cluney,	Michael Donlon,	

E. P. Skolfield, Ensign, U. S. Navy.

QUAKER CITY RUBBER CO., PHILADELPHIA, PENNSYLVANIA.

PHILADELPHIA STORE.

Ralph O. Potter	Secret Service.
Thomas C. Risdale	Base Hospital No. 10.
Harold Ritchie	United States Infantry.
George F. Eberling	United States Navy.
Fred A. Henry	Jefferson Hospital Unit.
Katherine Lufkin	Yeowoman Philadelphia Navy Yard.
Leonard Pratz	Machine Gun Co. United States Army.
John Steed	Aviation Corps.
Charles B. Yerger	United States Army.

CHICAGO STORE.

Henry Helms	First Regular Illinois National Guard.
Lloyd Felter	First Regular Illinois National Guard.
Leslie Evans	Field Hospital Corps.
Whitney Binz	Seventh Regiment Illinois National Guard.

PITTSBURGH STORE.

F. L. Rodgers	Officers' Training Camp, Chattanooga, Tennessee.

NEW YORK STORE.

J. S. Royal	United States Army.
F. L. Rogers	Aviation.

WISSINOMING, PHILADELPHIA.

G. Mitchell	Enlisted.
J. Fisher	Enlisted.
D. Lucero	Enlisted.
B. Waters	Enlisted.
John Williams	Enlisted.
David Fisher	Enlisted.
Edgar Bordley	Enlisted.
Charles E. Brown	Enlisted.
William Papperman	Enlisted Field Artillery.
L. Tilegan	National Army.
F. Brady	Federal Army.
William Knapp	Federal Army.
David Boyd	National Guard Post Ambulance.
Charles Sanford	Enlisted.
Dr. C. A. Barron	Enlisted Medical Department.
John Depew	National Guard Post Ambulance.
Joseph Tomlinson	National Guard Post Ambulance.
John Piercy	National Guard Post Artillery.
Charles Meyers	Enlisted Infantry.
Russell McLaughlin	Enlisted Infantry.
Robert Kuhn	National Guard Post.

LIST OF EMPLOYES IN THE SERVICE.

Howard Knobel	Enlisted N. R.
Patrick McKerney	National Army.
Elmer Rohrman	National Army.
Daniel McFadden	National Army.
Leo Grodzinski	National Army.
Joseph Tessull	National Army.
Caleb Summers	National Army.
Alex Hall	National Army.
George Mulvey	National Army.
John Andrzejewski	National Army.
Frank Burr	National Army.
David Summers	National Army.
Ted Broski	National Army.
George Ross	National Army.
Joseph Dickson	Enlisted.
Charles Thompson	National Army.

GEORGE E. B. PUTNAM, SOLICITING SUBSCRIPTIONS TO THE "FLAG FUND."

LETTERS FROM THE FRONT

The son of a well-known American rubber manufacturer who is driving an ambulance "Somewhere in France" writes the following graphic account of his experiences.

WE have all had a very busy night and have started on a busy day. This post is not on the first line circuit, but just behind, and we have to transport the men brought from the front to any hospital they want them taken to. The Germans are doing some firing now and the front line posts are getting some shells dropped around them. Night before last a shell hit the road in front of the post where one of our cars was stationed, and a piece of this shell, about the size of my middle finger, went directly through the wooden wall of the car, hit an iron bar, broke in three pieces, and came out in two places through the roof of the car. One of the drivers was looking in the back of the car at the moment it hit and he jumped about fifteen feet. A piece of the shell whistled past an artilleryman, standing nearby, and scratched his ear, which was the only casualty, thank goodness!

Last night they were dropping shells at the rate of about twenty a minute all around the post, but our fellows stayed in the "abris" and were perfectly safe. The road up to the first line post was shot up in two or three places, and the shells were dropping so regularly that our men could time them and then make a dash in between shots.

We reached here at 4.15 yesterday afternoon and at 6.45 a man was brought from the front crazed by shell fire. He was moved into the car and another man had to sit in the back to see that he kept quiet. The doctor told us we were to go to X—— with him, a drive of about 35 kilometers. We started off not knowing the road, and it took us an hour and a half to get there although we went very fast. You see, this distance is about 22 miles and strange roads all the way. We arrived just as it was getting dark and started back. Ted drove all the way over so I was at the wheel. It took us about an hour and three quarters and I have never had such a ride in my life. No one is allowed to have lights except a few officers' cars, so we had to do without them. It was a cloudy night and the moon had not risen and you can imagine how tense I was, driving the whole 22 miles with only one hand on the wheel and the other on the Klaxon. It was soon pitch dark and the only way to tell that something was coming was to look straight ahead where the sky was a little lighter than the road, and when something obscured the sky I slowed down. The entire ride was over one of the main roads, much used, especially at night, and with trees lining both sides it was very dark. I had to keep one eye on the right hand edge of the road and the other straight ahead. I nearly struck a tree, when an officer's car came tearing along at about 45 miles an hour from the opposite direction without any lights. As soon as that was past we encountered a train of supply wagons going in the same direction and a "camion" train going the other way. I managed to get past them both and soon came to a big town packed with soldiers, where I had to keep the Klaxon going continually. After passing the town I was going along at a fair clip, when suddenly a man stepped out of a sentry box and held out a red lantern. I jammed on the brake and found we were in the middle of a railroad crossing and a train was coming from the right. So I went into reverse and backed off the track just before the train got there. It was not going fast, but had it hit us, the consequences would have been serious. A few minutes later we arrived at —— and after threading our way through the narrow streets, crossed a bridge, and were soon out in the country again. We went up a long hill about a mile or more and soon arrived on a plateau at the top and all around us in a semicircle lay the lines. You cannot imagine what a sight it is to see the star shells, nearly as bright as daylight, shoot up over the trenches and slowly drift down on a parachute.

It was so dark we could not see any of the bumps in the road, however, we did not worry about them, for even if we should see them they could not be avoided. We turned down the road; however, we did not worry about them, for even if we about to pass another car something hit our front axle and the pan of the car. Thinking something had been lost, we walked back and found we had run over one of the big "torpilles," which had evidently dropped out of a wagon load, for it had not been fired. We dragged it off the road and left it in the ditch. It was a wonder we did not strike a fuse and set it off, for we had hit it hard enough to bend one of the steel wings. It was about three or four feet high and must have weighed sixty or seventy pounds and had four wings. It took us some time to cool down after such a surprise; however, we finally got safely to our post at ten o'clock. Some drive!

Just as we arrived, along came one of our cars from the front that had four "couchés," who had just been hit by a shell that landed in the middle of their company as they were marching along the road. One poor fellow was bemoaning the fact that he had not been wounded in all the three years of the war and that it had just happened as he was given permission to go home. One man had been hit in the head by part of the shell, while a fragment had pierced near the heart of another. He was the most seriously hurt of them all, but they were all brave and never made a sound on the way to the hospital. We left the post at 10.45, but had to creep all the way to the base hospital, as the man with the wound near his heart bled terribly. We got back here again at 1.15 this morning.

EXPORT LICENSE EXTENSIONS.

The War Trade Board recognizes the need in many instances for the extension of an export license beyond its expiration date. Accordingly the Bureau of Exports, of the board, has drawn up an application for extension of export licenses.

These forms, which will receive consideration in the same manner as original applications for licenses, are available at the Washington office of the bureau, 1436 K street, N.W., and at the branch offices.

Control and Prevention of a Rash Among Rubber Factory Employes.

By G. D. Kratz.

A RASH affecting men employed in the manufacture of rubber goods has long been recognized, and it is probably safe to say that no superintendent or foreman of experience is totally unfamiliar with the nature and consequences of it. Many, in fact, anticipate its appearance among the men with the first signs of a prolonged period of hot weather and hope that it does not become severe enough to cause the loss or continued absence of valuable men, as is sometimes the case.

It has been the writer's privilege to examine a large number of cases in several different factories manufacturing mainly automobile tires and inner tubes, and it is the purpose of this article to relate the efforts made to eradicate the disease and alleviate the sufferings of the patient.

The first appearance of the rash is usually made at the wrist, but quite frequently includes the entire forearm. No portion of the body, however, seems to be immune, and a severe breaking out at the wrist is often followed by another on the neck or face, or at the angles.

As in the case of similar disorders, even the preliminary stage is accompanied by an intense itching and a desire to rub or scratch the eruptions, which may at first be hardly discernible. This tendency develops rapidly and soon hampers the patient in his work. As the itching is usually even more noticeable at night than during working hours, it also occasions loss of sleep and very soon unfits the man for continued work of any description.

The recognition of the rash is not difficult, for in the early stages it almost invariably appears as a simple erythema, such as is generally attributed to the heat. This condition is closely followed by the appearance of sac-containing eruptions, or vesicles similar to those characteristic of ivy poisoning. These vesicles are quite small, seldom being larger than pin heads, and are grouped in varying arrangements, from being widely disseminated to quite closely aggregated. They rarely retain their integrity for more than 48 hours, being broken by friction from the clothes or by the patient's rubbing and scratching, or, if this does not occur, they soon become filled with a watery serum and rupture spontaneously in consequence of the pressure of the exuded fluid. The exudate, unless absorbed, loses a portion of its water by evaporation and dries to an amber-colored sticky crust. If these crusts are removed by accident or otherwise, a moist and reddened surface is found beneath from which a fresh exudation may almost immediately be seen to ooze. If this surface is wiped dry it will remain so for a short time only and will soon be covered with exudation that will form fresh and often larger crusts.

The preliminary hyperemia and vesicle formation may conveniently be termed the primary stage and, although this may be of long duration, with proper treatment will probably develop no further and finally disappear. The second stage, that of exudation and incrustation, does not ordinarily develop if any effort has been made to control the preliminary manifestations. In rare instances a third or chronic stage presents itself, wherein the exudation and incrustation proceeds to such an extent that huge blisters or scab formations result. This blister formation, which is also filled with watery serum, is usually resultant of uncleanliness and lack of proper attention, a condition sometimes brought about if the perspiration and exuded serum is not absorbed. In this regard, it is well to emphasize that while perspiration should in no way be retarded, it should be absorbed immediately as it appears. Happily, however, in any well-regulated factory the disorder will seldom develop beyond the first or second stages, with the greater number of cases confined to the former.

Though, as previously mentioned, the rash is most prevalent during hot weather, particularly in humid mid-summer, it certainly cannot be attributed solely to the heat; nevertheless the abnormal perspiration produced by the heat undoubtedly does play a part in rendering the skin most tender and susceptible to infection. Nor can it be said to be found localized in any one class of work. While under ordinary working conditions the men on the mills and calenders seem subject to infection more readily and in greater numbers than in other portions of the factory, those employed in cutting inner tube stock, splicing inner tubes, cutting tire stocks, cleaning liners, rolling rags and building tires are similarly affected. It is worthy of note that while the mill room and inner tube room usually contribute the greatest proportion of cases, the infrequency of its appearance on tire builders is quite remarkable. The latter may, however, be accounted for to a certain extent in that the tire room is usually one of the coolest and best ventilated rooms in the entire factory, thereby precluding many of the factors which contribute to the promotion of the disease. Also, in the case of handmade tires, the builders' operations are not such as to promote copious perspiration as is often the case with men employed in other departments.

Throughout the factory, the fundamental cause of the rash will probably be traced to the irritation produced by the careless handling of "green" stock or stocks on liners. A case in point can no doubt be found in almost any mill room. During the warm weather, the men employed on the mills and calenders will be found almost without exception to be working in sleeveless jerseys or undershirts, leaving the arms bare to the shoulders and with the neck exposed. All of the exposed parts will be perspiring freely. Under these conditions the mill men will warm up their stock and, when it has attained the proper temperature, will cut it off in roll form and carry it on their bare arms or thrown over the shoulders to the calender. A few trips with a roll of hot stock resting against the tender and perspiring skin is almost certain to induce the rash to appear at the points of contact.

This applies not only to stock hot from the mixing mills, but also to the carrying or moving of stock on liners by grasping the roll with the bare arms, in the freeing of calendered stock from the liner by use of the arm in unrolling, or even in the carrying of inner tube mandrels from the making table to the wrapping machine in such a position that the roll of stock rests against the arms and neck. In fact, it is apt to be common to any operation wherein contact of the skin with "green" stock or cotton fabric occurs. And in this respect it is interesting to note that in all cases examined by the writer, with the exception of the inner tube splicers, all the men affected handled cotton fabrics in the course of their daily operations. Those engaged in cleaning liners exhibited the rash in large proportions. On the other hand, rubber-coated fabrics, such as tire frictions, are not ordinarily as virulent as the fabric itself. This may also help to explain the small number of cases among tire builders, as the fabric always reaches them in a coated condition.

In the light of what has already been said it is obvious that in this, as in similar disorders, the logical remedy should be sought in prevention rather than in attempting to find a cure. As soon as a case develops, it is well to follow the now almost axiomatic rule in handling eczematous disorders and *exclude all sources of irritation.*

The above, although a simple rule to formulate, is often difficult to apply, as most of the men are forced by the nature of their work to continue doing the same operations which originally induced the irritation. Whenever possible, the patient should be given another type of work or be permitted to stay out a day or two. This will often effect a most rapid recovery even without further treatment, if the proper precautions are enforced when work is again resumed. The short respite from Saturday noon to Monday morning almost invariably effects a noticeable improvement.

In the cases wherein the affected portion is confined to the wrists and arms, the use of rubber or leather gloves reaching to the elbows is to be strongly recommended and is sometimes all that is required to effect a disappearance of the disorder. Or, if the nature of the work is such as to prohibit the use of gloves, the wearing of long-sleeved shirts, or sleevelets fastened at the wrist and above the elbow with rubber bands, should be made compulsory. Briefly, with the possible exception of the hands, neither stock nor fabric should be allowed to come in contact with the skin during the hot weather, and if this is rigidly enforced, little trouble will be experienced.

The cases that do develop should receive prompt attention and the affected parts be immediately protected. In the treatment then to be pursued, if the patient is otherwise in good physical condition, the use of internal remedies, or "blood purifiers" should be discouraged, and only local applications employed.

Although the efficacy of local applications varies widely with the patient, the best results have been obtained by using a dusting powder during the daytime and applying a salve or ointment at night. The use of a dusting powder in working hours has the double advantage of acting as an absorbent during the period of most copious perspiration and in affording the patient the simplest possible method of making his own application. The powder should be put up in a muslin bag to permit dusting the affected part from time to time by simply tapping that portion of the skin with the bag. By this means both the perspiration and exuded serum are absorbed and the formation of watery crusts is largely prevented. Such a powder may be made of various combinations of lycopodium, starch, zinc oxide, magnesia or other absorbent and basic substances. Excellent results have been obtained by using a powder made by intimately grinding together two parts of zinc oxide, one part starch, one part calcined magnesia and a small piece of gum camphor. For satisfactory results with this powder in a dust bag, the grinding must be carried almost to impalpability.

Frequent washing of the affected part during the daytime should be discouraged, except in so far as is necessary to maintain ordinary cleanliness. At night, however, it should be washed clean with soap and water, dried thoroughly, a salve or ointment applied liberally over the surface and, if possible, wrapped with gauze to insure against loss of the ointment during the night. The best results have been obtained by using salves or ointments containing ichthyol or ichthyol substitute (ammonium sulphoichthynat). In fact, although the mixtures containing ichthyol substitute tended to accentuate rather than relieve the itching, the curative results of the substitute when compounded with zinc ointment or resinol were fully equal, if not superior, to those obtained with the usual mixture of ichthyol and resinol. The substitute also has the advantage of being easily procurable, whereas ichthyol itself is exceedingly difficult to obtain. In the morning the ointment should be entirely washed off before the dusting process is again commenced.

Although many interesting deductions might be made from the records kept of individual cases as to the relative susceptibility of the various types of workmen affected by this disorder, the classes of work most apt to induce it, etc., the writer is convinced that any such conclusions should be held secondary and unimportant when compared with the far reaching results that can be obtained by simply protecting the tender skin from all irritating contacts. In conclusion the following recommendations are made:

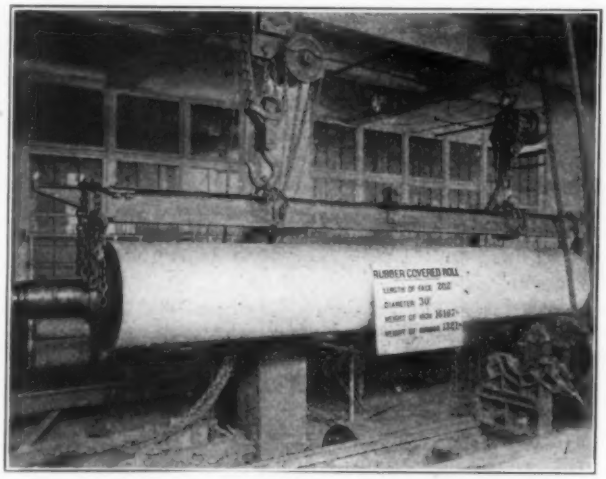
1. The enforced protection of the skin by the use of gloves, sleevelets, etc.

2. The use of an absorbent and basic dusting powder during working hours.

3. The application of an ointment at night.

COTTON WRAPPERS IN PRESS ROLL MANUFACTURE.

The shortage of cotton fabric is being severely felt in all lines of rubber manufacture and may adversely affect certain industries that largely depend on mechanical rubber goods, should it continue. The great paper industry uses rubber-covered rolls extensively that vary in size and weight. The press roll in the illustration, for instance, is 202 inches long, 30 inches in diameter and covered with 1,321 pounds of rubber. Preparatory to vulcanization, this roll is wrapped with 1,200 yards of cotton cloth. Many of these press rolls, so indispensable to the paper industry, are in use today, and thousands of yards of cotton wrappers are required in their manufacture.



PRESS ROLL MADE BY THE CANADIAN CONSOLIDATED RUBBER CO., LIMITED. MONTREAL, CANADA.

ABCILIUM MAKES LIGHT-WEIGHT MOLDS.

This new alloy, which is said to be extensively used for molds, is lighter than 99 per cent pure aluminum with a specific gravity of 2.51; in other words, it is 70 per cent lighter than cast iron with a tensile strength of 26,000 pounds per square inch. As the thermal conductivity is equal to that of copper, the steam pressure in vulcanizing can be materially reduced and the time allotted for curing cut down to some extent.

The rubber peels freely from molds made of this alloy and produces goods with a polished finish, due to the density of the metal. Moreover, the ease with which these molds are handled enables the operator to increase his production materially. They are now being used extensively for making soles, heels, drug sundries, toys, hoof pads, tires and cores. (The A. B. C. Castings Co., Cleveland, Ohio.)

"Rubber Machinery," Mr. Pearson's newest book, filled with valuable information for rubber manufacturers, is now ready for mailing. Price, $6.

Bankers' Acceptances for Financing Rubber Imports.

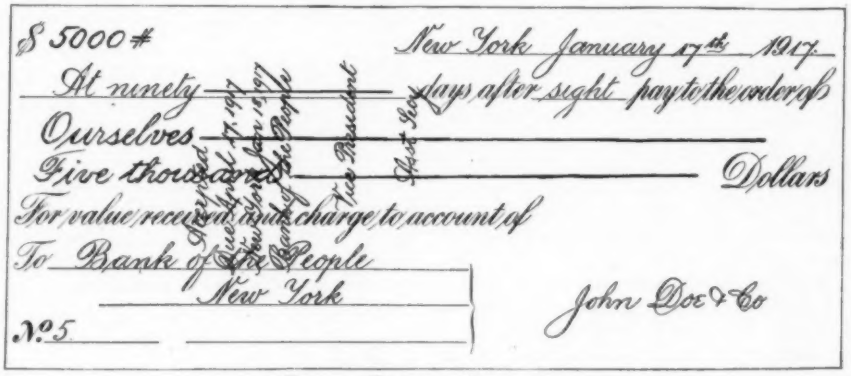
By Albert Breton
Vice-President Guaranty Trust Co. of New York.

UNTIL a year ago, "dollar exchange," as we know it to-day, was unheard of. Now, drafts drawn on New York in dollars are recognized in all of the principal markets of the world.

This great reformation in our financial equipment has been brought about since the passage of the Federal Reserve Act, which authorized improved facilities for the conversion of commercial credit and legalized acceptances, providing for their rediscounting. To-day, our merchants and manufacturers may buy and sell abroad on the basis of American dollars—not almost solely in sterling as of old.

In our foreign trade, the lack of acceptances has cost us much. A shipment from this country to South America, or to us from the Far East, for instance, was almost invariably paid for by a draft on London. Coming or going, our exporters and importers paid tribute to London's bankers.

For illustration, an English spinner, purchasing cotton here, would arrange with his local bank to accept bills of exchange drawn by the American shipper. In such circumstances, the American exporter drew on the English bank, with the bill of lading and other documents, and then discounted the bill with an American bank, receiving immediate payment for his cotton. The American bank forwarded the bill to its London correspondent which presented it for acceptance to the English bank. Upon acceptance, the bill of lading and other documents were delivered to the accepting bank which gave them to the spinner, subject to an arrangement between them. The bill was then rediscounted in London and the proceeds were placed to the credit of the bank in New York.


$ 5000 #
New York January 17th 1917.
At ninety days after sight pay to the order of
Ourselves
Five thousand Dollars
For value received and charge to account of
To Bank of the People
New York
No 5
John Doe & Co

FORM OF BANKER'S ACCEPTANCE.

An American importer, on the other hand, had to finance his purchases either by paying cash for the goods, or by throwing upon the seller the burden of carrying the credit.

In the latter case, the shipper drew a draft on the American importer and turned it over to his banker to forward for collection. Drafts of this character drawn against individuals—not against banks of established standing—had no general market and had to be sent for collection. It may readily be seen that the foreign shipper, in a transaction of this kind, could exact terms almost to suit himself. The alternative was for the American importer to arrange, through his bank, a credit with the seller, in London or elsewhere, on the strength of which the latter was enabled to dispose of his bills of exchange and thus receive payment for his goods. The American importer had to pay a commission to his own bank for arranging the credit, another commission to the London bank, and also had to take the chance of a material fluctuation in the rate of exchange. At the time the credit was opened, exchange on London might be at one figure and at the time of maturity, at a higher rate. This risk the American merchant was compelled to run.

Because our banks were not formerly authorized to handle acceptances, American exporters and importers were unable to do business abroad on as favorable a basis as their competitors. American exporters practically had to demand payment in cash against documents at New York. The acceptance has solved this difficulty. The exporter is no longer compelled to lock up his capital for indefinite periods. He draws a bill of exchange, gets it accepted, and discounts it.

A draft or bill of exchange is defined by a regulation of the Federal Reserve Board as "an unconditional order in writing, addressed by one person to another, other than a banker, signed by the person giving it, requiring the person to whom it is addressed to pay in the United States, at a fixed and determinable future time, a sum certain in dollars to the order of a specified person." Accepted bills of exchange are and have for a considerable time been a common form of negotiable paper with European banks. When bills of this class are accepted by banks abroad, they are known as "bankers' bills" and such documents form a considerable part of the assets of European banks under their "Loans and Discounts" item. Banks in this country were not enabled to use these credit instruments until after the passage of the Federal Reserve Act. This was owing to the fact that, when such a bill was drawn on a bank and accepted by it, the instrument practically lent the bank's credit to the drawer of the acceptance, a practice which a strict interpretation of certain Supreme Court decisions seemed to prohibit. Now, however, the Federal Reserve Act has definitely authorized and approved the bankers' acceptance as a credit instrument for American business.

A banker's acceptance is defined by a Federal Reserve Regulation as "a bill of exchange of which the acceptor is a bank or trust company, or a firm, person, company or corporation engaged in the business of granting bankers' acceptance credits."

In other words, a bank acceptance consists of extending the bank's credit to a customer. In this operation, the bank, for a consideration, permits the customer to use the bank's credit. This credit may be either secured or unsecured, depending upon the business, character, and financial responsibility of the applicant, but must always arise from bona fide commercial transactions.

Bank acceptances broaden the buying field of the merchant. By means of a letter of credit from his bank to the effect that, under certain conditions and up to a certain agreed figure, it will accept all bills drawn for his account, he is able to make his purchases advantageously, even in markets where he is unknown. His credit is thus enhanced, and his facilities largely increased.

A bank acceptance may be created as follows:

Richard Brown, in New York, buys of John Doe, in Galveston,

a quantity of merchandise. In order to reimburse John Doe in a convenient manner, Brown arranges with his bank in New York to accept, on presentation, the drafts of John Doe with documents attached. Doe thereupon, under the terms of the sale, draws on the bank, which accepts the drafts, taking possession of the documents. The drafts drawn by Doe on the bank become bank acceptances. Then ensues a credit operation between the bank and Richard Brown to determine what disposition is to be made of the documents and upon what terms the bank will surrender them. (It must be borne in mind that the bank is primarily liable upon its acceptance, and that the security for its acceptance is the merchandise, which is the basis for the transaction.) This adjustment is easily made. The bank having agreed to pay the drafts when they come due, Brown undertakes to provide the bank with funds for that purpose prior to the maturity of the acceptances.

The foregoing case describes a documentary bill. Another form of acceptance is created when the customer draws his own draft directly on the bank, and the bank accepts it for payment at a future time. Such an acceptance would be called a commercial credit bill and might be secured by warehouse receipts or other collateral, or simply by the general credit of the customer.

The direct financing of shipments of plantation rubber from the Dutch East Indies to the United States is now usually done through two banks, one in New York and the other, for example, in Batavia. The buyer of the rubber goes to his New York bank and arranges for it to issue a credit authorizing the seller to draw at 90 days sight to cover the invoices. In due course, after the rubber has been shipped, the exporter draws on the New York bank with invoice, bill of lading and other documents attached, and the New York bank, having opened the credit, accepts the draft for its customer's account, and under his guarantee.

If the financing be done through London, the buyer in the United States could arrange with a trust company or bank in New York to open a credit for him with its London office, so that the seller in the Dutch East Indies could draw direct on London. If the buyer wished, he could at the same time fix the rate of exchange at which he would liquidate the drafts when they fell due in London. This could be accomplished by the bank agreeing to sell so much sterling exchange for delivery during a certain period or at the due dates of the drafts.

Egyptian cotton, which is used so extensively for tire fabric, is also financed direct or through London in the same way.

Crude rubber and cotton are frequently purchased on terms which enable the buyers of these raw materials to place their orders six months or more in advance of delivery. The use of acceptances in the financing of such transactions is defined in two informal rulings of the Federal Reserve Board, under date of November 9, 1915, and June 14, 1917.

The Board decided on the latter date that it "is of the opinion that a national bank may properly accept a draft drawn for the purpose of importing goods whether or not the sale of the goods under consideration has actually been consummated at the time of the acceptance of the draft. If the accepting bank is assured that the proceeds of the draft will ultimately be used solely for the purpose of financing a transaction involving the importation of goods, it is immaterial whether or not the goods have actually been sold at the time of acceptance. In fact, it is not even necessary that the goods to be sold be identified at the time of acceptance."

The Board decreed on November 9, 1915, that "it is not necessary that the specific goods covered by the acceptance must be identified at the time of the acceptance." On the same day the Board also ruled, "the accepting bank may, for a reasonable period, accept new drafts for the financing of the original transaction, even after the shipment and delivery of the goods."

RUBBER TRADE INQUIRIES.

THE inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The editor is therefore glad to have those interested communicate with him.

[343.] A correspondent wishes to know where soapbark may be procured.

[344.] An inquiry has been received for names of concerns furnishing tube splicing mandrels.

[345.] A correspondent desires a ready-made solution for dipped rubber goods.

[346.] Manufacturers of aluminum latex cups are sought.

[347.] An inquirer requests information concerning the best method of stripping inner tubes from the poles.

[348.] A correspondent wishes to get in touch with concerns who buy uncured friction stock.

[349.] A firm is in the market for a caustic soda dissolving apparatus.

[350.] An inquirer desires information with regard to the Kay Tubing Machine Feeder, or similar devices for tubing machines.

[351.] A correspondent desires to purchase Hexamethylene-Tetramine.

[352.] An inquirer is in the market for tire accessories.

TRADE OPPORTUNITIES FROM CONSULAR REPORTS.

Reserved addresses may be obtained from the Bureau and its district and cooperative offices. Request for each opportunity should be on a separate sheet, and state opportunity number.

[25,614.] A man in New Zealand desires to secure an agency for the sale of rubber heels and soles.

[25,627.] An agency is desired by a man in Brazil for the sale of cheap automobiles and accessories.

[25,632.] A man in Switzerland wishes to purchase and to secure an agency for the sale of accessories of all kinds for bicycles and motorcycles.

[25,633.] A business man in New Zealand is in the market for fountain pens and all kinds of novelties.

[25,648.] A firm in Japan wishes to purchase fountain pens and all kinds of stationery supplies.

[25,654.] A merchant in India is in the market for rubber goods, such as tires, etc.

[25,664.] A man from Chile, who is at present in the United States, wishes to secure an agency for the sale of mechanical rubber goods.

[25,699.] An agency is desired by a man in Italy for the sale of artificial leather.

[25,706.] A company in Italy desires to purchase bathing caps.

[25,706.] A firm in England is in the market for caustic soda, all chemicals, such as glacial acetic acid, etc., aniline oil, and antimony sulphuret.

[25,706.] A man in England desires an agency for the sale of rubber chocolate molds.

[25,733.] A man in France wishes to secure an agency for the sale of cloth shoes with lowers of rubber, also rubber heels and soles.

[25,767.] An agency is desired by a man in Algeria for the sale of automobile accessories and rubber goods.

[25,768.] The representative of a firm in France, who is stationed in the United States, desires to communicate with manufacturers of rubber goods.

[25,780.] A member of a firm in Switzerland desires to secure the exclusive agency for the sale of waterproofs.

What the Rubber Chemists Are Doing.

THE CHEMISTRY OF VULCANIZATION.

THE chemistry of vulcanization has been summarized by Dr. D. F. Twiss, in a paper read before the Society of Chemical Industry. This has been outlined by our English correspondent in THE INDIA RUBBER WORLD, September 1, 1917, but is here given in fuller abstract because of its practical interest.

The hydrocarbon nature of rubber was realized before the discovery of the process of vulcanization. The careful examination of purified rubber, both as to its composition and chemical behavior, was not undertaken until years after vulcanization had become an important technical process, largely because of the difficulties of accurate chemical investigation with a non-crystalline substance which is obtained chemically pure only with exceeding great difficulty.

Until recently, few of the reagents for olefinic compounds have been even tentatively suggested as agents for vulcanization. The use of chlorine, bromine and iodine, and aqueous hypochlorous acid was suggested fairly early for this purpose. In more recent years benzoyl peroxide, which might be expected to react additively at a double bond, as its parent compound hydrogen peroxide is known to do, and various aromatic nitro and polynitro compounds, which are known as a class to form additive compounds with olific substances, have been stated to convert rubber into a condition resembling vulcanized rubber. The resemblance is, however, so remote that no serious hope can at present be entertained for a successful application of these substances for technical vulcanization.

Technical vulcanization of rubber is invariably effected with sulphur chloride, or with sulphur, though additional ingredients are commonly added to insure desired physical characteristics, such as color, definite specific gravity, coarseness, strength or increased rate of vulcanization.

COLD VULCANIZATION.

Vulcanization by sulphur chloride is effected at ordinary temperatures by dipping the material into a solution of sulphur chloride in some suitable inert solvent or by exposure to the vapor of such a solution. The vulcanizing effect is largely restricted to the surface layers and is not uniform in effect at various distances below the surface. It is largely a matter of speculation as to what may happen to the general mass of rubber when in technical practice a piece of rubber sheet is allowed to combine with a quantity of sulphur chloride, insufficient to convert it wholly into the final additive product.

HOT VULCANIZATION.

The process of heat vulcanization presents a more complex problem than that of cold vulcanization, but lends itself better to scientific investigation on account of the possibility of so selecting the temperature that the reaction proceeds with conveniently measurable velocity. There is chemical reaction between rubber and sulphur during vulcanization, but this change may not be exclusively chemical in nature. Attempts have been made to represent vulcanization as a combination of a chemical change with an adsorption process. The suggestion that the free sulphur is absorbed before vulcanization is unnecessary and less probable than that the chemical product of vulcanization is absorbed into the remaining rubber after its formation. Examination of various technical soft products vulcanized by the heat process shows that the amount of sulphur in combination with the rubber is variable usually within the limits of two to seven per cent. Modifications in the physical nature and molecular condition of rubber during vulcanization are indicated by the results of Harries, who has shown that ordinary rubber behaves as if composed of three intervertible varieties, but also that in ordinary soft-vulcanized rubber the major portion of the rubber is not in combination with the sulphur, although it possesses different physical and chemical characteristics from raw rubber. The very considerable change which occurs when newly vulcanized rubber is allowed to "mature" indicates that the alteration in mechanical characteristics induced by vulcanization may continue for a short time after the chemical change is complete.

TESTING RATE OF VULCANIZATION.

The rate of vulcanization is of importance, that the period necessary for satisfactory vulcanization be not too prolonged. Also it is important that the behavior of various consignments of rubber should be as uniform as possible, so as to permit standardization of procedure without need for constant readjustment. Examination of rate of cure may be made by measurement of the resulting physical effect and by determination of the extent to which sulphur enters into combination when a mixing of standard composition is given a definite cure. Both methods are desirable in conjunction.

The physical method gives an indication of the inherent mechanical value of the rubber, which is an advantage in its favor. The standard mixing adopted for this test is frequently sulphur, 10, rubber, 90, and is vulcanized for a series of gradually increasing periods at a constant temperature (in steam under 50 pounds), after which the mechanical properties of strength and stretch of the samples are measured, and the period of vulcanization necessary to produce optimum mechanical properties decided from the results.

RUBBER RESINS AND PROTEINS.

Rubber is not a pure hydrocarbon substance, but is contaminated with natural resins and protein substances, and these foreign ingredients appreciably affect the rate of vulcanization. If the resins, and, more especially, the protein matter be removed from the rubber the rate of vulcanization is markedly decreased. If rubber is enriched with natural proteins by dissolving away part of the hydrocarbon with benzene, the rate of vulcanization in the protein enriched rubber is enhanced.

VULCANIZATION ACCELERATORS.

The use of calcined magnesia, litharge and lime has for years been a recognized device to shorten the vulcanization period. In recent years a notable advance in heat vulcanization has been the introduction of organic bases as accelerators. It has long been known that alkali-process regenerated rubbers sometimes vulcanized with exceptional rapidity. Martin demonstrated that a small percentage of powdered caustic potash in a mixing of rubber and sulphur caused a greatly increased rate of vulcanization. Eaton has recently shown that a similar effect is produced by soaking freshly coagulated rubber in caustic alkali solution, but has since withdrawn his recommendation of the process.

As a result of certain experiments, Dr. Twiss has found the most suitable solvent for the alkali is glycerol, which dissolves sodium hydroxide or potassium hydroxide, in all probability, with formation of the corresponding glyceroxide. The latter alkali is more easily soluble, and a solution containing approximately 25 per cent of the total weight is easily obtained. If one to two per cent of such a solution (anhydrous) is introduced into a rubber sulphur mixing the vulcanization process is greatly accelerated, the effect being comparable with that of the strongest organic accelerators. It is also noteworthy that the actual quantity of alkali approximates closely to the half per cent recommended for the most effective organic accelerators and that with a rubber-sulphur mixing the resulting vulcanized rubber in both cases possesses the same clear, dark, almost semi-trans-

parent appearance. As to aging of samples vulcanized in the presence of the alkali solution in glycerol, after a lapse of three years since vulcanization a certain weakening was observed, but no greater than in similar mixings, containing other accelerators.

ZINC SULPHIDE PIGMENT.

The manufacture of zinc sulphide whites is an intricate chemical process. They are chemically made by a double precipitation process, are furnaced at a very high temperature, and carefully washed and dried, producing a white of exceptional strength and body. No white pigment made possesses greater uniformity than the standard makes of zinc sulphide whites.

Rubber manufacturers have found the zinc sulphide pigments especially adapted to their compounding. Many have replaced zinc oxide entirely, or in part, with the zinc sulphide pigment. It is assuming increasing importance as a rubber compounding ingredient and has been found suitable for all grades of rubber goods.

The use of zinc sulphide will do much to help the present situation in zinc pigments confronting the rubber manufacturers, because the zinc sulphide pigments require much less basic metal in their manufacture than other zinc pigments.

FRENCH RUBBER COURSE.

A course in chemistry applied to rubber, similar to those established in the United States, England and Germany, has recently been instituted in Paris. It is conducted by the eminent French rubber chemist, André Dubosc, in his laboratory.

LATEX VESSELS IN HEVEA BRAZILIENSIS.

The important matter of the distribution and occurrence of latex vessels in *Hevea braziliensis* has been investigated by G. Bryce and L. E. Campbell, and their results appear in Bulletin 20, Department of Agriculture, Ceylon. The authors note that there are two clearly distinguishable though not sharply defined zones in *Hevea* cortex. These are (1) the inner cortex, from which stone cells are absent. Here the latex vessels are continuous; (2) the outer cortex, abounding in groups of stone cells, the development of which eventually breaks up and displaces the rows of latex vessels. There is a considerable variation in the number of stone cells present in the cortex of different trees, varying from extreme abundance to comparative scarcity. The scope of the author's investigation included the determination of variation in the number of rows of latex vessels at different seasons, and at various heights on the tree as well as numerous details as to spacing, connection and other relation of the latex vessels to the surrounding cortex. A summary of results is presented by the authors as follows:

1. Considerable variation occurs in the number of stone cells in the cortex of different trees. There is consequently variation in the degree of disintegration of the latex vessels.

2. There was evidence of the diminished production of latex vessels in February and March when the trees were changing leaf.

3. The number of rows of latex vessels in the cortex decreases with the height above ground level.

4. The distance between rows of latex vessels did not usually increase in proportion to the distance from the cambium. The average of the distances between the rows was approximately 0.2 millimeters.

5. Well defined cases of connections between neighboring rows of latex vessels were not observed. Several examples of bifurcation of rows were noted.

6. The course of the rows may not be invariably regular and parallel. Sometimes the rows undulate, and the same neighboring rows vary in distance apart at different points.

7. In general, the thicker the cortex the more rows of latex vessels it contained, though the increase was not great.

8. The distance from the cambium of the first interrupted row was approximately 1.5 millimeters; this represents the inner cortex, or food conducting tissue of the tree, and should be left untapped.

VULCANIZATION RESULTS ON PLANTATION RUBBERS.

An extensive series of investigations on the vulcanization of typical rubbers from seven plantations has been made by P. Schidrowitz and H. A. Goldsborough and published recently in "The India Rubber Journal." The results are embodied in numerous tables in which is shown the rate of cure, type, breaking strain, elongation at break, and tensile product for each sample, grouped by plantations and grades. The authors comment as follows on their results:

RATE OF CURE.—It is clear that in every case the smoked sheets (average) are more rapid curing than the first latex crêpes. In some cases this feature is pronounced, in others it is slight. The results are not in all cases strictly comparable, in view of the variable number of samples of each grade.

There is a very marked variation as regards rate of cure between the goods of the various plantations, and this applies more particularly to the better grades (smoked sheet and first latex).

There is a considerable variation in most cases as between different samples of the same grade in the case of each plantation. This is less marked in some cases than in others ,and on the whole the rate of cure of the smoked sheets is less variable than that of the first latex crêpes. It will be noted that out of a total of 148 samples of smoked sheet, 119 cured within the range 2.0 to 2.75 hours; whereas out of 132 first latex crêpes, 88 samples cured within the range 2.5 to 3.25 hours. With regard to the brown crêpe samples one would naturally expect a wide variation, but as a matter of fact, comparing one plantation with another, the averages from the browns do not show such extremes as do the better grades. These remarks, it must be remembered, apply only to *rate of cure*, for as regards type and mechanical properties, the browns, as was to be expected, show a much greater variation than the better grades.

TYPE.—The first latex crêpes show a slight but distinctly better average type than the smoked sheets. In this regard the browns, naturally, are a bad third.

TENSILE PROPERTIES.—Comparing the first grades for each plantation, we find that in every case the average tensile product is somewhat higher for the smoked sheet than for the first latex samples. In some cases, however, the difference is very slight. We also find a greater variation as between the first latex samples of different plantations than between the smoked sheets, similarly compared.

With regard to the browns there is naturally, considering the range of material, a wide difference, both between samples of the same plantation and between the sets from different plantations.

METHODS OF ANALYSIS.

ELECTROLYTIC PROCESSES FOR RUBBER COMPOUNDS.

THE following electrolytic methods for determining lead, zinc and antimony in rubber compounds are applicable for use with the Kimley apparatus described in these columns in the November number.

LEAD.

Weigh one gram of rubber, wrap in an ashless filter paper, and ash in porcelain crucible. Brush into an electrolytic beaker, add 25 cc. concentrated nitric acid, and digest on hot plate for 15 minutes. Boil to expel nitrous fumes, dilute to about 25 cc., and heat to 70 or 80 degrees C. Electrolyze with rotating cathode, using two to three amperes. The lead will come down on the larger gauze—anode—as PbO_2, black when in large amount, and bronze colored when in small amounts. Run 30 minutes, and wash anode well with water to remove mechanical impurities. Dip in alcohol and then in ether. Dry 30 minutes at 170 to 180 degrees C. in hot air oven. Weigh as PbO_2. This can be calculated to litharge or white lead as desired. No metal

compounds present in rubber mixings will interfere with this determination.

ZINC.

Wash the solution and insoluble material from the electrolytic beaker used in the lead determination into 600 to 1,000 cc. beaker, and add 5 cc. concentrated sulphuric acid. Evaporate to fuming and drive off most of the sulphuric acid to insure the complete removal of nitric acid which would prevent the zinc from depositing. Cool and dilute with 50 to 70 cc. of water, filter and wash. If the ash upon removal from the flame was yellow when hot and white when cold, considerable zinc is indicated. In this case dilute the filtrate to 200 cc. and take 50 cc. (or 0.25 grams) for zinc determination. Otherwise the entire filtrate may be used. Add saturated sodium hydrate solution to the portion taken for zinc until alkaline and any zinc precipitate formed is redissolved, then add about five cc. excess. Electrolyze at ordinary temperature at two to two and a half amperes with rotating anode for 20 minutes. Wash down with water and remove. Dip in alcohol and then in ether and dry three or four minutes at 100 degrees. The zinc is weighed as metal and can be calculated to oxide or sulphide as desired.

ANTIMONY.

Place one gram ground sample in a Kjeldahl flask and add 24 cc. concentrated sulphuric acid. Digest over open flame in hood for two or three hours. Cool and add one gram potassium manganate crystals cautiously. Boil for a short time and the mass will assume a pale green color. Cool and dilute with 200 cc. of water. Boil, cool and filter into 400 cc. beaker and gas rapidly with sulphureted hydrogen. Allow to settle, decant through filter, and wash three times by decantation. Punch hole in filter paper, pour about ten cc. yellow ammonium sulphide over paper, and receive in beaker containing the antimony sulphide. Wash filter with hot water, and wash contents of beaker into electrolytic beaker containing ten grams ammonium sulphate; the volume to be about 100 cc. Heat to incipient boiling, and electrolyze with rotating anode for 20 minutes at one ampere. Wash down frame in hood for two or three hours. Dry three minutes in an oven at 100 degrees C. and weigh as antimony. Weight times 1.67 equals antimony pentasulphide.

CHEMICAL PATENTS.

THE UNITED STATES.

MATERIAL USED IN THE MANUFACTURE OF ARTICLES OF CLOTHING. An article of clothing comprising two plies of fabric united by a layer of a vegetable colloid (glue), glycerin and a hardening agent. [Raymond B. Price, New York, New York, and Theodore Whittlesey, Upper Montclair, New Jersey, assignors to The Goodyear's Metallic Rubber Shoe Company. United States patent No. 1,245,268.]

COMPOUNDING OF RUBBER. The process of compounding rubber with gas black on a mixing mill, which consists in bringing the gas black with kerosene oil to a dustless granular condition, and then compounding it with rubber. [William C. Geer, Akron, Ohio, assignor to The B. F. Goodrich Company, New York. United States patent No. 1,245,700.]

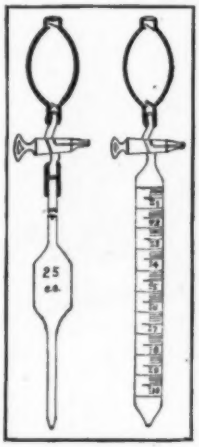
THE UNITED KINGDOM.

PLASTIC COMPOSITIONS. Plastic compositions resembling hard rubber, or ebonite, are derived by treating yeast or certain yeast residues alone or mixed with other albuminous substances or material containing albumen, after prevoius drying with formaldehyde. The material so treated is dry molded under heat and pressure. This produces a horn or ebonite-like substance, the properties of which can be modified as required by filling means, as well as by the addition of tars, oils, resins, glue, to which may be finally added other substances reacting with formaldehyde, such as phenols. [Ernest Krause, 6 Sedanstrasse, Berlin-Steglitz, and H. Blucher, 1. Canalstrasse, Leipzig-Gohlis. British patent No. 106,270.]

LABORATORY APPARATUS.

NEW SAFETY PIPETTE.

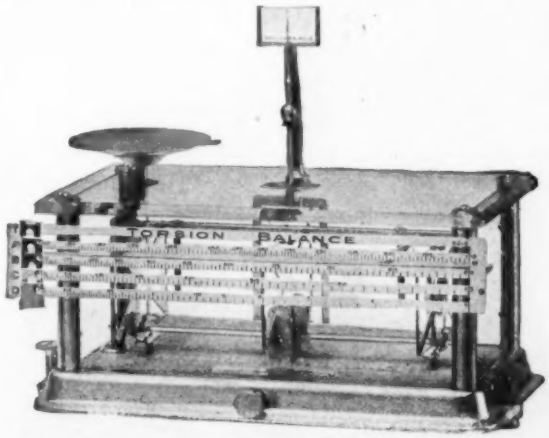
A SAFETY pipette is very necessary for the chemist in pipetting acids, alkalis and poisons. A simple and effective form has been devised by A. S. Behrman, Bureau of Science, Manila, Philippine Islands, and described in the "Journal of Industrial and Engineering Chemistry." The essential feature of the device is a provision for permitting two inlets to the pipette proper, one of these being connected with a source of suction, the other with the outside air. A very satisfactory arrangement is a three-way stop-cock used in conjunction with a stiff atomizer bulb, properly valved.



To operate, the three-way cock is turned so as to connect the pipette with the bulb. The pipette is then filled a little above the mark by operating the bulb, the valves acting to prevent the back flow of the liquid. Finally, the stop-cock is turned so as to admit the outside air to the pipette, by which means the liquid is lowered to the mark and subsequently delivered.

COTTON YARN CALCULATING BALANCE.

A very useful instrument for ascertaining yarn numbers is shown in the annexed cut. This balance is built on the well-known torsion principle and is sensitive to two milligrams. It ascertains the yarn number of cotton yarn without calculation or the use of weights, using a 120-yard sample. The capacity of the balance is as follows, the letters referring to the series of slide beams: *T* is a blank beam for all numbers above 200: *A* numbers 200 to 110, yarn numbers 200 to 150 by single numbers and numbers 150 to 110 by halves; *B*, yarn numbers 110 to 60 by halves; *C*, yarn numbers 60 to 25 by halves; *D*, yarn numbers 25 to 5—numbers 25 to 20 by halves, numbers 20 to 5 by quarters. [The Torsion Balance Co., New York City.]



GUAYULE OFFERED.

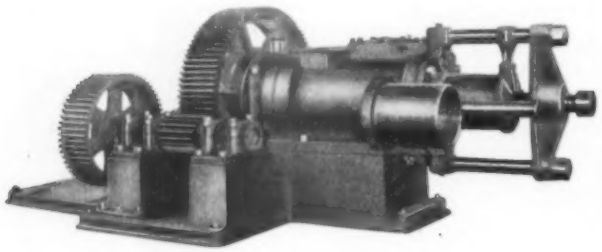
Vice Consul Stephen E. Aguirre at Ciudad Juarez, Chihuahua, Mexico, has received from a citizen of that district an offer to furnish supplies of guayule. The name of the producer may be obtained from the Bureau of Foreign and Domestic Commerce, its district or cooperative offices, by referring to file No. 93950.

New Machines and Appliances.

THE ALLEN TWIN HEAD STRAINING MACHINE.

AS the rubber industry continues to expand, the manufacturers of machinery are constantly endeavoring to evolve highly productive labor-saving machines. As an example of what is being done to reduce the cost and increase the production in the manufacture of reclaimed rubber, a novel straining machine is here illustrated and described.

This is a twin head, 10-inch straining machine, designed and constructed for particularly heavy duty. It is of the low working type and mounted on a rigid cast iron base, the height of



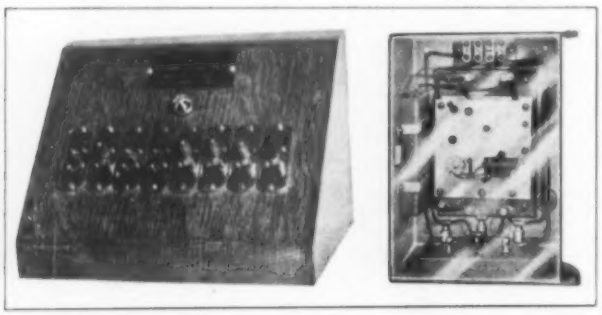
the feed bar from the floor being 44 inches. The construction of a platform around the machine to facilitate operation is therefore unnecessary. All gearing is extra heavy, with exceptionally wide faces to insure ample driving power and provide against unusual strains.

The twin head construction permits a quick exchange of heads when the one in use becomes clogged or when a head of different straining capacity is to be substituted, this operation being accomplished in about two minutes by the operator. Both heads and equipment are of steel and constructed in such a manner as to deliver safely the maximum amount of product. [Allen Machine Co., Erie, Pennsylvania.]

ELECTRIC CALLING AND FIRE ALARM SYSTEM.

Factory calling systems are now of indispensable value in all the large rubber mills, while fire alarms have always been considered a necessary part of the factory equipment. The system here illustrated has been designed with special reference to the requirements of large manufacturing plants, and for that reason will be of special interest to rubber mill men.

The calling system is entirely electric in operation and therefore does not require hand winding. The selector fingers are



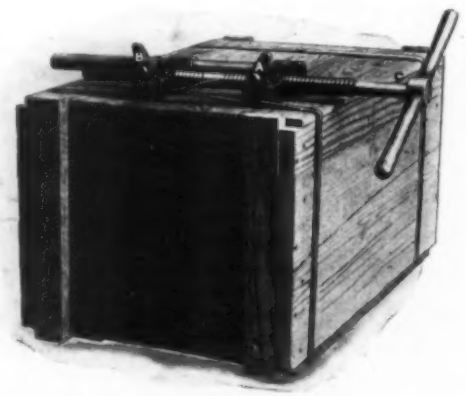
of the telephone ringing key type, and are arranged on a wood case which may be placed on the operator's desk. It is operated by pressing down the proper keys to secure any desired code number when the instrument is started in operation by depressing the extreme key on the right. This key is red, whereas the code keys are black. A small electric tell-tale lamp flashes the code to the operator at the same time the signals are rung. The system may be used with either battery voltage or 110 A.C or D.C. current and is moderate in cost. The desk instrument is absolutely silent in operation—the selector mechanism being placed in a separate cabinet in a closet.

The fire alarm system consists of a master selector, of simplified construction, ringing any desired code three rounds or indefinitely, as desired. It is designed for use with regular break-glass fire alarm stations or push button operation, and any type of signal can be used, such as vibrating or single stroke bells or horns. The instrument will be furnished wound properly to operate from any battery already installed in the building of 16 volts or over.

The master selector is similar for both equipments, the mechanism being operated by a strong spring that is wound by a powerful electric magnet. The only basic difference in the selector for the fire alarm and the calling system is in the arrangement of the contacts, that for calling having a series of contacts which come into alternate contact with a revolving flat spring; whereas the fire alarm has a definite code actuated by teeth cut on the cam. The time element feature is obtained by means of an escape wheel and a weighted pendulum which can be readily adjusted for different ringing speeds.—[The Standard Electric Time Co., Springfield, Massachusetts.]

THE ROLBEIN PROTECTOR.

Plantation rubber is shipped from the Far East in wooden cases that often arrive in a damaged condition, due to the long haul and frequent handling in transit. Broken packages usually



mean damaged contents and may result in the entire consignment being refused on arrival. It is therefore important that the cases should be strongly built and properly banded in order to adequately protect the valuable contents. A band applying device here shown, possessing many practical features, should be of interest to rubber producers and importers.

This is a patented device for sealing and locking cases, frames and bales with a steel band or strap insuring safety in the packing and transportation of goods. The strong steel straps take the place of nails in sealing the cases and not only increase the strength of the packages but protect them from being opened without detection before reaching their destination. The straps do not tear or rip the cases when the banding is removed and consequently the cases may be used over again. [Schirmer & Schirmer, 5 East Forty-third street, New York.]

THE NEW CUTLER-HAMMER SAFETY SWITCH.

Individual motor drives are now in general use throughout the trade wherever modern methods are applied in machinery installations. The switch by which the motor is started and stopped is an important part of the equipment and should not only provide protection to the machinery, but insure safety to the operator. The new switch here shown is provided with a sliding panel, enclosing the contacts and fuses, that interlocks with the mechanism so that the fuses are dead when the panel is lowered, thus insuring safety to the operator when inspecting or renewing fuses. With the panel in its closed position the starting handle may be operated. The fuses are not in circuit when starting, but are automatically included in the motor circuit when the starting hand reaches the running position. The fuses can therefore be of sufficiently low capacity to give proper protection to the motor windings. Failure of voltage causes the switch to open. Unexpected restarting, with the resultant possibility of injury to operator or machine driven, is prevented because, to again start the motor, it is necessary to operate the starting lever.

The capacity of this standard switch is: 3 horse power, 110 volts; 5 horse power, 220 volts. [The Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin.]

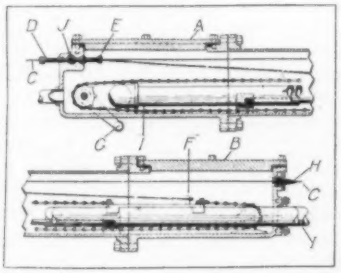
SHARPENER FOR RUBBER MAKERS' KNIVES.

In the manufacture of certain rubber goods, hand cutting knives are in common use and therefore the sharpening device here illustrated is interesting. These sharpeners are specially adapted for putting a keen edge quickly on rubber knives, being coated with abrasives particularly suitable for the intended purpose. They are furnished to the trade in different grades from 12 to 19 inches long; one, for example, is coated on all four sides with an abrasive, while another grade is coated on two sides only, one side being fine and the other coarse abrasive. They are not only suitable for hand knife sharpening but are equally useful in sharpening the blades of cutting machines. [Electric Sharpener Co., Stoughton, Massachusetts.]

MACHINERY PATENTS.

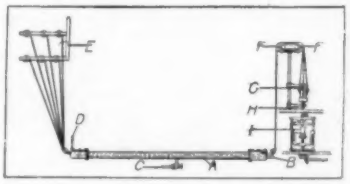
CORD IMPREGNATING AND DRYING APPARATUS.

BRIEFLY, the apparatus consists of a cylindrical, steam-heated vacuum-connected pipe through which the cords are passed, being impregnated and dried in transit while the solvent vapors are drawn off and recovered. In the illustration are shown vertical sections of the left and right hand ends of the apparatus, which is adapted to treat six cords. The covers *A* and *B* are removed from their respective ends and the cords *C* are threaded through the tubular nipples *D* and *E*. The cord ends are attached to a rider *F*, mounted on a sprocket chain actuated by a hand crank *G*, whereby they are carried through the pipe to the opposite end and are threaded through the outlet nozzles *H*. After the covers are bolted down, steam is passed through the pipes *I* and the vacuum pump operated, meanwhile rubber solution has been forced into the chamber *J* under pressure. As the cords pass through this chamber they are impregnated and subsequently dried in transit through the apparatus. [James D. Tew, Akron, Ohio, assignor to The B. F. Goodrich Co., a corporation of New York. United States patent No. 1,245,066.]



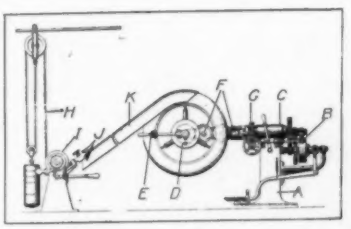
METHOD OF MAKING RUBBERIZED HOLLOW CORD.

According to this invention, the individual textile strands are first impregnated with rubber solution, then dried, twisted and passed through a tubular die, forming a hollow tubular cord. The apparatus shown in side elevation comprises a 20-foot chamber *A* heated by steam pipes *B* and provided with suction pump connections *C*. Rubber solution is pumped through pipe *D* into a chamber located between and communicating with six outer and six inner hollow nipples, through which the six strands from creel *E* are passed and impregnated with rubber. As the strands continue through the apparatus they are heated and dried and led over guide rollers *F* to the twisting apparatus *G*. Here, the strands are conveyed around a central core and passed through a tubular die *H* that forms the hollow cord, which is wound up by the spooling mechanism *I*. [James D. Tew, Akron, Ohio, assignor to The B. F. Goodrich Co., a corporation of New York. United States patent No. 1,245,067.]



KREMER'S TIRE BUILDING MACHINE.

The object of this invention is to obtain a uniform tension upon the successive plies of fabric when they are applied to the core. In the side elevation here shown, pedestal *A* supports a high and low speed belt-driven gearing *B* that actuates the core driving shaft, which passes through a sleeve journaled in bearing *C*. This sleeve terminates in a long and a short arm, on which the core chuck *D*, bead applying levers *E*, *E*, and core-driving gears *F* are mounted and revolved with the sleeve by means of the hand wheel operated worm gearing *G*. The tension is obtained by a weighted cable *H* that passes around the sheave *I*, provided with a braking device, and attached to the clamp *J*, in which one end of the fabric strip is gripped, while the other is applied to the core. The core is then rotated and one ply of fabric is applied, when the machine is stopped and the strip cut off at the correct length. This operation is repeated until the requisite number of layers have been applied, when the structure is smoothed down. The core is then placed in a horizontal



position and rotated. The bead is then centered and applied to the casing by one of the bead levers. Finally the core is reversed, bringing the opposite side of the casing uppermost, and the remaining bead is applied in the same manner as the first by the other bead lever. [Franklin W. Kremer, Carlstadt, New Jersey. United States patent No. 1,243,076.]

OTHER MACHINERY PATENTS.

THE UNITED STATES.

1,244,245. Tire-inspecting machine. W. H. Robertson, Rockford, Ill.

1,244,255. Folder device for wrapping-machines. W. C. Stevens, Akron, Ohio, assignor to Pierce Wrapping Machine Co., Chicago, Ill.

1,245,190. Cutting attachment for calendering-machines. R. Butler and E. A. Tinsman—both of Barberton, Ohio.

1,245,583. Repair vulcanizer. E. Grunz, assignor to D. E. Rogers—both of Wheeling, W. Va.

1,245,695. Flexible coupling. W. J. Francke, Highland Park, assignor to Francke Co., New Brunswick—both in N. J.

1,245,696. Flexible coupling. W. J. Francke, Highland Park, assignor to The Francke Co., New Brunswick—both in N. J.

1,245,898. Die for tire tubing machines. W. R. Gates, assignor to Revere Rubber Co.—both of Providence, R. I.

1,245,964. Repair vulcanizer. C. H. Payne. Louisville, Ky.

THE UNITED KINGDOM.

108,724. Tire building machine. W. and A. Bates and J. Healy—all of St. Mary's Mills, Leicester.

108,754. Rim cleaning machine. W. A. Thomas, 21 Belgrave Crescent, Eccles, Lancashire.

108,950. Sole laying machine. Atlas-Werke, Pohler & Co., 64 Schonbachstrasse, Stöteritz, Leipzig, Germany.

108,965. Machine for applying rubber stock in manufacture of tires or rubber covered rolls. C. F. Davis, Benledi Pier Road, Northfleet, Kent.

109,048. Machine for stripping clincher tires from cores. Firestone Tire & Rubber Co., Cole avenue, assignees of W. C. Stevens—both of Akron, Ohio, U. S. A.

109,075. Machine for making hollow rubber articles. H. Wade, 111 Hatton Garden, London. Aranar Co., Cleveland, Ohio.

THE DOMINION OF CANADA.

178,114. Vulcanizing apparatus. The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of M. H. Clark, Hastings-on-Hudson, New York, U. S. A.

178,273. Machine for cementing shoe uppers. I. L. Keith, Haverhill, Mass., assignee of H. G. McMurray, East Rochester, N. H.—both in U. S. A.

178,286. Machine for applying rubber covers to tires. The Miller Rubber Co., assignee of F. F. Brucker—both of Akron, Ohio, U. S. A.

178,517. Vulcanizing apparatus. The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of C. Lee, Naugatuck, Conn, U. S. A.

PROCESS PATENTS.

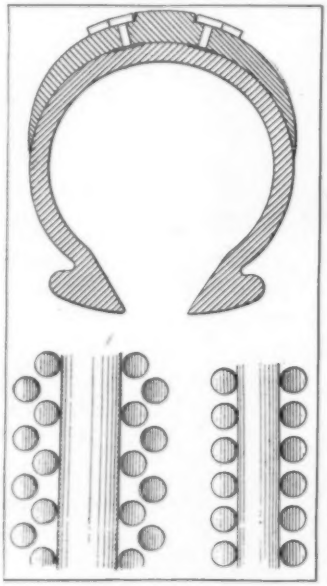
THE DOMINION OF CANADA.

178,008. Process of treating rubber. The Canadian Consolidated Rubber Co., Limited, Montreal, Canada, assignee of E. E. A. G. Meyer, Detroit, Michigan, U. S. A.

MISCELLANEOUS PATENTS.

A FRENCH NON-SKID PNEUMATIC TIRE.

ACCORDING to European standards, non-skid casings are usually of two types. One has a strip of leather or rubber provided with metallic studs and is especially suitable for wet roads and pavements; the other, rendered non-slipping by the rubber tread, is effective only on dry pavements and roads.



The new casing here shown is composed of a rubber tread, with rows of metal studs on both sides. It thus unites the advantages of both the above types and possesses non-skid qualities under a greater variety of road conditions.

The illustration shows a transverse section of the tire and also a plan of the tread surface, with a variation in the disposal of the studs, shown in the view on the right. [Michelin Co., Clermont-Ferrand, France. French patent No. 483,576.]

Electrical Vulcanization.

THERE is unquestionably a vast amount of heat lost in the methods used at the present time for vulcanizing rubber goods, due to condensation of steam through radiation, conduction and convection from pipes, presses and vulcanizers. Even when the parts are covered with non-conducting material, the loss of steam is doubtless many times in excess of the steam actually required for the chemical reaction involved in the actual vulcanization of the rubber.

The substitution of electricity for steam is not new, but an improved method of vulcanizing rubber by electricity has recently been patented that, according to the claims, not only effects a great saving in heat and labor, but insures a more uniform cure in less time, and is therefore interesting. Metal contacting strips or plates are employed, through which is passed an electrical current, that is maintained for the proper length of time to effect a cure. By constructing the heating strip or plate at different points with sections of varying electrical resistance, the vulcanization of belting, packing, mats, tires and molded goods may be accomplished.

In an experimental test, a strip of high-grade packing stock, 5 feet long, 1/16 of an inch thick and 7 inches wide, and a strip of aluminum, 5 feet long, 7 inches wide and 8/1000 of an inch thick, were wound around a 1¼-inch copper rod, that served as an electrical distributer for the inner end of the metal strip. The opposite end of the metal strip was provided with an electrical distributer consisting of a copper bar ½ inch wide, ¼ inch thick and 7 inches long, the electrical terminals being attached to the inner and outer distributers, respectively. An electric current of 450 amperes, with a voltage of 86/100ths was passed through the aluminum strip for 28 minutes, effecting a uniform cure. The coiled strips of rubber and aluminum were covered with an asbestos jacket and during the vulcanization the temperature within the jacket rose from 70 degrees to 285 degrees F.

In another test a strip of cheap stock packing, 7 inches wide, 1/16 of an inch thick and 5 feet long, was subjected to the heating action of an aluminum strip, 5 feet long, 7 inches wide and 22/1000 of an inch thick. In this case, the rubber and metal strips were coiled together on a copper rod as above described. An electric current of 639 amperes with a potential of 1.13 volts was passed through the strip for 32 minutes, and the rubber was found to be perfectly vulcanized. During vulcanization the temperature adjacent to the coiled strips, which were surrounded by an asbestos covering, rose from 70 degrees to 300

degrees F. Manifestly the period of vulcanization may be materially shortened by increasing the rate at which the current is delivered through the metal plate.

In another instance a strip of rubber packing of cheap stock, about 5 feet long, 7 inches wide and 1/16 of an inch thick, coiled together with an aluminum strip 5 feet long, 7 inches wide and 22/1000 of an inch thick, with electrical distributers at its ends, such as above described, was vulcanized in a period of 12 minutes. In the last mentioned case the electrical current was of 825 amperes, with a potential of 1.44 volts; the asbestos covering, however, was retained about the coiled strips for about four minutes after the electrical current had been cut off.

In the several above mentioned tests a 60-cycle alternating current, passed through a transformer, was employed.

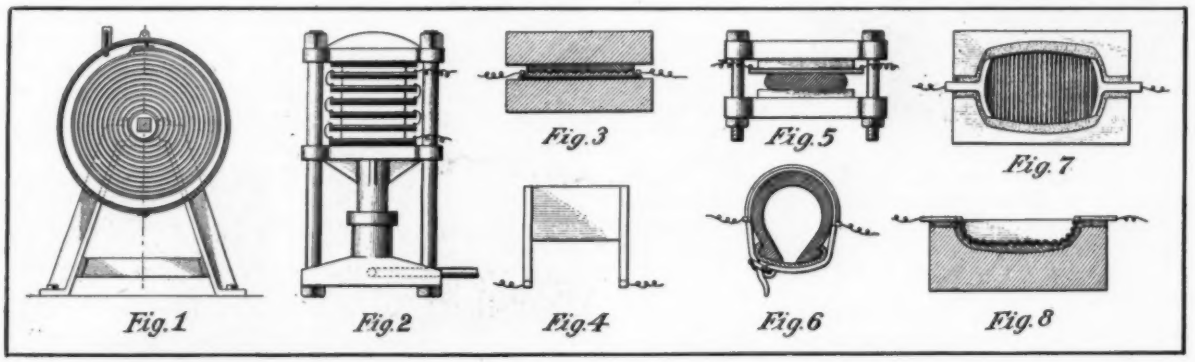
From the foregoing it will be seen that the period of vulcanization can be increased or shortened by correspondingly varying the strength of the electric current, regardless of all other conditions.

The apparatus illustrated in Fig. 1 is designed for vulcanizing rubber belting, packing, or the like. The strip of belting and the strip or plate of metal are coiled around the mandrel and the sections of the casing placed in position, and when the electric connections are made the current will flow through the plate and effect the vulcanization of the rubber strip.

In Fig. 2 a hydraulic press is shown in which the molds are heated by the passage of electric current through plural layers of thin metal plates. The molds containing the articles of rubber to be vulcanized are placed between the thin metal plates that are insulated from the platen and head of the press by sheets of insulating material, and similar sheets are interposed between one side of each mold and the adjacent metal plate to prevent the short circuiting of the electric current through the molds. The plates are of thin metal and provided at their ends with electric distributers that are connected to the electric circuit. When the current is passed through the several heating plates the rubber articles contained within the molds are vulcanized.

Fig. 3 illustrates the vulcanization of a corrugated rubber mat, the two surfaces representing the head and platen of a press between which the rubber mat is held. Under the mat is placed a corrugated metal plate that is insulated from the platen and provided with electrical distributers connected to the electric circuit. Inasmuch as the metal plate has one of its surfaces corrugated, it is obvious that different parts of the corrugated plate will have different degrees of heat imparted thereto. The thinner portions of the plate which come opposite the thicker portions of the rubber mat will offer a greater resistance to the passage of electric current than the thicker portions of the plate and thus will be more highly heated than the thicker portions of the metal plate opposite the different portions of the corrugated mat. Hence, it will be seen that when electric current is passed through the plate, the entire body of the mat will be uniformly vulcanized within a comparatively short time.

In Fig. 4 a metal plate is shown as provided at its opposite ends with electrical distributers and connected respectively to the terminal portions of the circuit wires, these distributers being preferably copper bars. In Fig. 5 this plate is shown as applied to the vulcanizing of a section of a rubber belt, as, for example, the lapped and cemented ends of an endless belt. The belt and heating plate are held between the insulated jaws of a clamp. When electric current is passed through the plate, the requisite heat will be imparted to the section of the belt to effect its vulcanization, or the vulcanization of the rubber, whereby its lapping ends are joined. In Fig. 6 the heating plate is shown as applied to the vulcanization of a rubber tire repair. As shown, the plate is bent around the injured portion of the tire (to which rubber cement and the patch have been applied) and the plate is held tightly about the surface of the tire by a strap. By passing electric current through the plate, the requisite degree of heat effects the vulcanization of the rubber cement that has been applied to the injured portion of the tire.



In Figs. 7 and 8 are shown the vulcanization of rubber articles within molds, the cavities of which are lined with a layer of insulating material whereon is placed the thin metal lining plates. As shown, the insulating lining extends through the ends of the mold and on these extensions rest the shanks of the electric distributers that are attached to the plate metal lining of the mold. The lining plate will, of course, have imparted thereto the shape or configuration required to be given to the molded article of rubber, and when the rubber article has been placed in the mold, current will be caused to pass through the electrical distributers and through the metal plate until the vulcanization of the rubber within the mold is effected. The lining plate may be formed in any of the ordinary ways or by electrolytic deposition. [R. B. Price, New York City. Assignor to the Rubber Regenerating Co., Mishawaka, Indiana. United States patent No. 1,237,554.]

DEMAND FOR CATALOGS AT SINGAPORE.

There is a demand in Singapore for complete catalogs from American producers of chemicals and machinery to be used in connection with the rubber industry. Importers desire that such catalogs be accompanied by full particulars of the articles offered. Communications may be addressed to the American consulate.

A TEST OF DELION TIRES.

The present freight difficulties are resulting in an increased interest in the use of motor trucks for inter-urban transportation. In a test recently made by the Delion Tire & Rubber Co., Trenton, New Jersey, a three-quarter ton truck fully loaded made the run between Trenton and New York, a distance of 58 miles, in two hours and 40 minutes.

New Goods and Specialties.

PRODUCTS OF THE RUBBER TREE.

THIS luscious looking fruit is designed to deceive the most suspicious observer—in fact, the peaches, pears, oranges, etc., are so skillfully depicted that they must be touched before one can realize his mistake. The fruit comes in small boxes, the soft pink "fuzziness" of the peaches blending harmoniously with the deep purple of the plums and the more delicate tints of the other fruit. The strawberry, a perfect and appetizing specimen, has a small stem and leaves of rubberized material. All these deceiving varieties, upon closer examination, are found to be made of rubber and stuffed with cotton. [F. A. O. Schwarz, Fifth avenue and Thirty-first street, New York City.]

THE "GIEVE" LIFE-SAVING WAISTCOAT.

The new invention here illustrated, designed to insure safety at sea, has been found of great practical use by English naval officers and will undoubtedly appeal to Americans whose duties entail an over-seas trip. The garment in question has a wide encircling fold containing a rubber tube, which has a valvular connection with a small rubber tube extending to a pocket above. By this means, the wearer may inflate the inner tube in a minute's time with sufficient air to provide a life-belt in case of need. A pocket underneath the belt supplies a place for a small flask of some stimulant, as a precaution against the dangers of prolonged exposure. When the waistcoat is deflated and in daily use, it presents the appearance of an ordinary vest except for the fold concealing the tube, which lies flat and is not noticeable. [B. Altman & Co., Thirty-fourth street and Fifth avenue, New York City.]

"ENDUROID"—A SUBSTITUTE FOR SOLE LEATHER.

Now that the best grades of sole leather are not only difficult to procute but extremely high-priced, a satisfactory substitute is welcome. A recent suggestion in this connection is "Enduroid," a material which contains a certain percentage of rubber. It is waterproof, pliable and light, and will outwear the finest leather, costing less than half as much. It is also "silent-walking"—a recommendation to the city dweller. "Enduroid" is used for soles and heels, and comes in sheet form in black, tan and white. [The Endurance Tire & Rubber Co., New Brunswick, New Jersey.]

A CONVERTIBLE RAINCOAT.

A noticeable change has come over the once despised raincoat—that unprepossessing garment which formerly extinguished the wearer's charms and was put aside at the first gleam of sunshine. The new model here displayed is a decided contrast and has several unique features which are both attractive and serviceable. A shaped belt buttons at the back and is brought forward, fastening with a long-waisted effect in the center of the front. The pockets, which are cut in one with the belt, are of a useful but not an exaggerated style. A deep cape with turned-up ends conforming in design with the pockets, is at a moment's notice unbuttoned; and, by closing this—buttoning the opening in the middle of the back and catching the sides to some link buttons—a very becoming hood is formed which may be drawn over the head, with or without a hat. The tabs at the front of the cape cross and are buttoned to the double-breasted front. The sleeves are of an unusual design—raglan in front and kimono behind—and the cuffs may be buttoned closely at the wrists for greater protection The coat is made of rubberized gabardine in a rich shade of Burgundy, [The N. W. B. Co., New York City.]

A CANVAS RUBBER SOLED GOLF SHOE.

A shoe for playing on the golf links should be soft enough on the tread so as not to injure the turf, and should give a firm footing even though the ground or turf be wet. A golf shoe which answers these requirements is made of white or brown canvas, with a cemented rubber sole and a solid rubber heel which extends forward to give extra support at the base of the arch. The sole has a number of vacuum cups which help in giving firm footing when

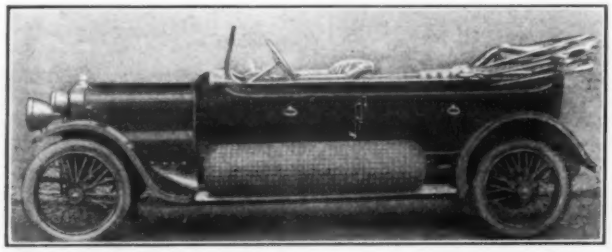
playing the stroke. The upper is reinforced at the seams with leather trimming matching the brown canvas or contrasting with the white canvas, and the lace piece is of the same leather. The whole makes a very comfortable shoe, light in weight, very durable, and protects the foot from moisture and dampness. (Apsley Rubber Co., Hudson, Massachusetts.)

RHIN-O-HIDE SOLES.

A relatively new composition sole, for which is claimed durability, pliability and all-round satisfactory service, is called Rhin-O-Hide. A proof of its lasting qualities is shown in the accompanying illustration, the reproduction of a photograph of a pair of soles which were worn four months and 17 days in trench and field service by a captain of the 38th Canadian Over-Seas forces. Such severe service, in mud and water, over barbed-wire and all sorts of debris from burned buildings and fallen masonry, is a test which might reasonably destroy a sole, yet these, as the illustration shows, are capable of still further service. [Miller Rubber Co., Akron, Ohio.]

THE WOOD-MILNE RUBBER CONTAINER.

A new and important development in containers for carrying coal gas under pressure, to be used as fuel for motor vehicles, has been recently designed by Wood-Milne Limited, Manchester, England. It is made of rubberized fabric, the only metal used in the construction being a small plate carrying the inlet and



outlet valve connection. The container is made in two complete sections that divide it transversely, and which are subsequently joined together. The separate sections are built up on a mandrel, around which the strips of frictioned fabric are wound in a manner very similar to that employed in building a tire casing. The free ends of the fabric strips of the two sections are then interwoven and the container vulcanized. The completed cylinder measures 5 feet 6 inches long, by 14 inches, outside diameter, the walls being 1 inch thick, and when charged under 1,800 pounds pressure—120 atmospheres—it carries 500 cubic feet of gas, the equivalent of two gallons of gasoline. The container, when charged, weighs 60 pounds and may be attached to the running board of the car and the gas led to the engine through the induction pipe, the butterfly throttle of the carburetor controlling only the air supply.

A NEW STYLE OF BINOCULAR MAGNIFIER.

The magnifier displayed in the accompanying illustration will prove a decided boon to medical men, geologists, etc., who are called upon to examine minute objects. By its use, small particles may be examined with both eyes at once, being seen in practically natural perspective, well defined and in relief. The

magnifier is held in place by an adjustable elastic headband, or a fiber one, if preferred. The eyepiece caps are of hard rubber, shaped to fit snugly over the edges of the orbit, but allowing sufficient space for the insertion of corrective glasses, if required for astigmatic eyes. Each eyepiece is provided with an aperture for ventilation, to prevent moisture collecting on the surface of the lens, and there is also an opening near the bottom for natural vision, when necessary. The magnifying lenses can be readily exchanged, so that one instrument furnishes various magnifications to suit the choice of the user. The Binocular Magnifier may be secured in a number of sizes, and can be conveniently used on an adjustable stand, if this is preferred to the usual method. An illuminating appliance may also be fitted to it. (The Bausch & Lomb Optical Co., Rochester, New York.)

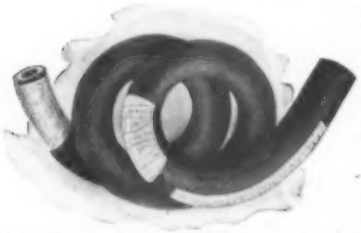
SOME CHRISTMAS TOYS.

Christmas is nearly here! Small folk in every family are already sending epistles to the jolly patron saint, politely intimating various pressing wants—and toys of all descriptions will constitute the greater part of these requests. With this in mind, rubber manufacturers have designed an unusually large variety of rubber toys, dolls of every sort being extremely popular. The United States Rubber Co., New York City, has produced a number of original designs, and a few of these are here shown, wearing expressions indicative of their various dispositions. Uncle Sam beams benevolently upon the world, with a sailor boy appropriately at his elbow, while the other figures are equally well calculated to bring joy to many an infant heart. Incidentally, the sedate little girl, the sailor, the grim Indian chief and the dashing rough-rider are recent additions to the rubber toy family.

AMERICAN MADE RUBBER TOYS.

AN "AIRTITE" HOSE.

A new type of rubber air hose has plies of highly frictioned duck, over which is a braided seamless cotton jacket of great tensile strength and thoroughly impregnated with a special rubber compound. The hose has a heavy inner tube and a tough outer covering designed to withstand an unusually high pressure, the outside ply equaling 2 plies of duck in bursting pressure. Owing to the construction of the hose, it can be bent at any angle with no resulting "kinks" to obstruct the air space; neither does the inner tube separate from the plies of duck, nor the outside wall crack—a frequent occurrence with ordinary rubber hose. As the inner tube resists the action of oil, this hose is desirable for pneumatic tube service. It is also used for air drills, in which case it has an especially heavy tube and outer covering. (The Peerless Rubber Manufacturing Co., 31 Warren street, New York City.)



THE "BRUNETTE" RUBBER SOLED SHOE.

In these days of high prices for leather, the rubber footwear manufacturers are using their utmost endeavors to produce shoes which will meet the approval of fastidious wearers, and which can be sold at a lower price than standard leather lines. A handsome example is called the "Brunette," a boot with an upper of black cravenette, having a sole of black rubber and "Louis" heel of the same color. The upper is stitched with black silk, an extra row being applied for the purpose of ornamentation. This shoe, being graceful in style and on a fashionable last, is likely to commend itself to those who wish to combine style with a moderate price. [The Canadian Consolidated Rubber Co., Limited, Montreal, Canada.]

SPONGE RUBBER SOLVES LOOM TROUBLES.

The so-called picking motion of fabric weaving looms is the power that throws the shuttle back and forth through the warp threads. The power required and the wear of throwing and checking the shuttle may be largely reduced by the leather-faced rubber cushion binders and box front shown in the accompanying illustration.

A special sponge rubber of great resiliency is used under the leather face of the binder or box front and absorbs the shock of the flying shuttle, easing it into the box so that check straps are unnecessary and there is no rebounding. The delays incidental to repairing and replacing check straps are thus avoided and, moreover, kinky filling is practically eliminated. The device may be attached to the present equipment of binders, box fronts or box backs in any mill for looms of any make at small expense, and manufacturers are invited to send parts to be equipped for trial. [Herbert Emmons, Lawrence, Massachusetts.]

THE SKUDDER CAR.

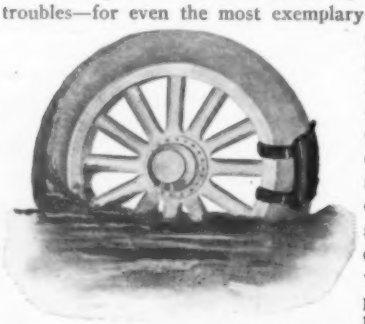
This new and popular vehicle for children is run by the simple expedient of shifting the weight of the body from one foot to the other, the passenger standing on the wooden tilting board. The car has 12 and 10-inch rubber-tired wire wheels and an 8-inch steering wheel. It is practically unbreakable, being made of steel throughout except for the tires and the tilting board, and having a direct double-ratchet drive and a one-piece ball bearing axle. It runs easily and can cover from 10 to 12 miles an hour, being also a "coaster." (The Janesville Products Co., Janesville, Wisconsin.)

THE "SILEX" COFFEE FILTER.

This is made of "Pyrex" fireproof glass and is self-pouring, as shown in the accompanying illustration. The upper receptacle contains a funnel surmounted by a metal drainer, a rubber plug acting as a bushing between the funnel and the glass. The water in the lower container may be heated either by an electric attachment or an alcohol lamp, the coffee in the upper bowl being filtered through a cloth strainer, which covers the drainer and may be renewed when necessary. This filtration process is repeated when the heat is removed, the liquid returning to the upper part of the filter. The "Silex" can also be used for making tea, cocoa, etc. It is procurable in a number of designs. [The Silex Co., 45 High street, Boston, Massachusetts.]

THE TERWEDO AUTO MUD SHOE.

The season of snow and mud is at hand. It therefore behooves the prudent motorist to fortify himself against possible troubles—for even the most exemplary car has been known to act strangely on a lonely country road. The mud shoe here shown is designed for just such emergencies. It is made of steel, pressed into shape over a forming die, with traction flanges seven inches wide and one inch deep. Four web straps, fitted with patent buckles and easily loosened, fasten it to the tire, each rear wheel of the machine having a shoe attached. As the under side of the shoe is concave, the mud or snow is pushed into the rut and a step is thus formed on which the car can gradually lift itself out. The shoe projects beyond the sides of the tire, securing a greater traction power than if the same width, and has a lifting surface of seven inches across underneath the tire and an equal extent on top. [The Nelson-Bacon Manufacturing Co., Oshkosh, Wisconsin.]



The Editor's Book Table.

ASSOCIATION YEAR BOOK, 1917. QUARTO, 272 PAGES. THE Merchants' Association of New York.

NO one who sees this large volume, telling of the work of The Merchants' Association of New York, can fail to appreciate the immense amount of benefit which is accruing to America's leading mercantile and manufacturing city through the activities of this association. A glance through the reports of the secretary and of the various minutes shows the large volume of work which is being done to benefit the city as a whole, and every class of business and manufactures included within greater New York. It is to be noted that the rubber trade is strongly represented, the leading manufacturers and importers showing proportionally well in the membership, while well-known men in these lines are included in the various committees, who thus give a portion of their valuable time and experience in furthering the interests of the association. The book is handsomely illustrated with half-tones and diagrams. An alphabetical list is given, as well as lists of the various divisions, classified according to the trades represented.

A COMPARISON AND CRITICISM OF TWO EXCELLENT SYSTEMS of Tapping. By E. E. Moreau. Arthur H. Wheeler & Co., Temple Chambers, Temple avenue, London, E. C., England. [14 double pages, 7 diagrams in color, bound in paper 10¼ by 14½. Price, 5 shillings net.]

This interesting document by the chairman of several rubber companies compares graphically the single "quarter" cut system with that of a single "third" cut following six years of basal V tapping, both being planned by Mr. Moreau on a basis of daily tapping, 20 cuts per inch, which gives 4 years for the first bark renewal, 6 years for the second and 8 eight for the third. It is asserted that the single "third" cut from the start will give the better yield for the first 26 years of tapping, and allow the same time for each successive bark renewal, although the other system will give the better yield for the first two years and also for the 9th and 10th years. In the opinion of the author, it is when the tree is 30 years old and reaches its 27th year of tapping that the ultimate value of the two systems will be definitely ascertained. His contention is that if the fourth bark renewal requires more than 8 years, the advantage will be with the single "quarter" cut, which will admit of 10 years for the fourth bark renewal and 12 years, if necessary, for the fifth without going too high up the tree for convenient tapping. Thus where the single "third" system has been employed it may be desirable on the 29th year of tapping to change to the single "quarter" system. Improved tapping with 30 cuts to the inch would permit the third system to be continued indefinitely.

AMERICAN HARDWARE JOBBERS' DIRECTORY AND TRADE Name Index. Edward G. Baltz, New York City. [Quarto, 214 pages, paper. Price $1.50.]

This book, a convenient volume, contains a large amount of information useful in the hardware trade. Some account is given of the American Hardware Manufacturers' Association, together with portraits of the officers. The lines of goods included are presented under 70 headings, the directory being arranged by cities and towns, the names of dealers listed, and the name of the buyer given under each concern; where there are two or more buyers the lines of goods in which each is interested are specified. In incorporations the amount of capital stock is stated, also the number of traveling men and the territory covered. Other individual facts are included in certain cases.

Besides this list, which embraces the United States and Canada, there is a special list of heavy hardware jobbers, and also of automobile accessory jobbers and New York exporters. In addition, a large list of South American hardware importers and dealers, is given, and this is followed by a list of trade names or brand goods, together with the manufacturers or proprietors. The book shows careful compilation, and a wide sphere covered.

THIRTY-NINTH ANNUAL REPORT OF THE BUREAU OF INDUSTrial Statistics of New Jersey. Bureau of Industrial Statistics, Trenton, New Jersey.

This report, embracing 275 pages of statistics for the year ended October 31, 1916, contains much information regarding the rubber industry in New Jersey, consisting of 63 establishments devoted to the manufacture of both hard and soft rubber goods. During 1915 the amount of capital invested in rubber manufacture increased 19.2 per cent from the previous year, or from $30,276,289 to $36,104,017, an average of considerably over half a million dollars for each establishment. These 63 concerns used $23,108,803 worth of material in 1915; there were paid in wages $7,040,083, the goods made being valued at $45,009,478. The number of employes was 11,647, of whom 10,116 were adult males, 1,422 adult females, and 109 children. This industry showed a greater percentage of gain in 1915 over the previous year than any other, with the exception of that of the manufacture of high explosives.

HENDRICKS' COMMERCIAL REGISTER OF THE UNITED STATES for Buyers and Sellers. S. E. Hendricks Co., New York City. [2,209 pages; price, $10.]

The twenty-sixth annual edition of the above work, which has just been published, deals with the interests of the various allied industries, architectural, contracting, electrical, etc., the rubber industry being also included. Comprehensive lists are given of producers, manufacturers, dealers and consumers, and the products manufactured; also a trade classification index covering over 50,000 trade references; and a reference list of trade names, brands, and the like. A special feature is the alphabetical section, containing the name, trade description and address of every concern given.

The SYREN & SHIPPING, LIMITED, London, England, has recently published an extremely interesting review of the trade and industries of Brazil, entitled "Brazil Commercially Considered." This handsome volume, 9½ x 14½ inches, is profusely illustrated with attractive half-tones. The 106 pages of text matter embrace articles dealing with the historical and geographical features of the country, its natural resources, economic progress and general importance as a factor in the world's trade. Two pages are devoted to a description of the rubber industry, past, present and future, mention being made of the climatic conditions of Para, which have enabled this state to become the center of the rubber trade. All who desire a thorough knowledge of modern Brazil should read this graphic and instructive work.

THE OCTOBER, 1917, ISSUE OF "SPERLING'S JOURNAL," LONDON, contains an able article by E. L. Killick, rubber editor of "The Financier," entitled, "Rubber After the War," in which he discusses the world's peace and war consumption and distribution of crude rubber, the factors affecting production, and presents statistics to show that about 1920, production may be expected to become comparatively stationary. Assuming that the demand continues to expand as heretofore, he figures that about that date the world may have to face a shortage of rubber, rather than the over-production some have feared.

COPY OF INDEX TO "Rubber Machinery" will be sent free upon request.

NEW TRADE PUBLICATIONS.

THE Connecticut Mills Co., Danielson, Connecticut, is distributing a handsome little brochure entitled "The Village Beautiful," which describes and pictures the development of the plans of that company to build, for rent or sale to its employes, houses of modern design and construction on a large tract of land in that prosperous community, as has already been described in THE INDIA RUBBER WORLD. The book is one which will interest every manufacturing concern desirous of improving the housing problem for its workpeople.

* * *

The Faultless Rubber Co., Ashland, Ohio, assists the retailers of its products by timely hints for selling. Its "Faultless Bulletin Sales Service" for November gives full directions for conducting a hot water bottle sales campaign. A striking window display is suggested and a brilliant poster furnished, advertising the bottles made by that company.

* * *

The General Tire & Rubber Co., Akron, Ohio, is sending out some very attractive advertising matter, the large colored poster of General "Jumbo" tires and that of Geneva cord tires being particularly effective. The former is a special over-sized tire for small cars using 30 x 3½ inch clincher rims, while the latter, a two cure wrapped cord tire, is made in regular sizes with ribbed and non-skid treads.

* * *

The Federal Rubber Co., Cudahy, Wisconsin, has published a little 32-page, pocket-size booklet, entitled "Care Saves Wear," which shows the automobilist, by description and illustration, the cause and effect of improper treatment of tires. Small as it is, the book contains much information of value to everyone driving a pneumatic tired vehicle.

* * *

"A Complete Guide to Tire Repairing" is the title of a neat, compact book of 136 pages, with board covers, price 2s. 6d. net, published by Harvey Frost & Co., Limited, London. It gives much valuable information for the repair man, being carefully written, and voluminously illustrated. Its object is primarily to exploit the H. F. process of vulcanization, and the H. F. equipment, tools and materials for a tire repair shop. A smaller book, price 1 shilling, published by the same concern, is called "The Motorist's Handbook on Vulcanizing and the Care of Tires," which name well describes its object. Both volumes are substantially bound, finely illustrated and give complete details of the work to which they are devoted.

* * *

The Guaranty Trust Co. of New York has prepared for distribution an eight-page pamphlet devoted to "The Regulation of Exports Under the Espionage Act," which is of value for reference in every office engaged in export business.

* * *

The New York State Department of Labor reports that the furs, leather and rubber goods group in the August statement shows nearly three per cent decrease in employes and four per cent in wages, as compared with July. Repairs and inventory period in the manufacture of boots and shoes, the dominant industry in this group, was responsible. As compared with August of last year, there were three per cent fewer employes and 10 per cent more wages were paid.

The following telegram was sent to THE INDIA RUBBER WORLD, October 4, by the head of the "Cotton City" enterprise in Arizona:

"Returned to-day from Phoenix. Actually saw two inch staple Pima variety in the Temple gin. 1918 crop will run nothing but Pima variety of the long staple cotton."

EVERETT MORSS.

WHILE some men specialize, others seemingly have the capacity of doing many things and doing all of them well. A man who has managed a variety of enterprises and made a success of them all is Everett Morss, president of the Simplex Wire and Cable Co., of Boston, Massachusetts, who has recently been appointed New England representative on the Priority Committee of the Council of National Defense.

EVERETT MORSS.

Mr. Morss was born in Boston, Massachusetts, March 6, 1865, and was educated in the public schools of that city, graduating from the English High School in 1881, and four years later graduating, with an S. B. degree, from the Massachusetts Institute of Technology. He was connected with the Morss & Whyte Co., an old established wire working concern, becoming the president on the death of his father in 1893. He has occupied the position of president of the Simplex Wire & Cable Co. for several years and also president of the Simplex Electric Heating Co. Among his other positions of responsibility and trust may be mentioned: trustee of the Morss Real Estate Trust; director of the Boston Belting Co.; director of the Chemical Products Co.; director of the First National Bank of Boston; member of the corporation and of the executive committee of the Massachusetts Institute of Technology. He has always taken an active interest in the Boston Chamber of Commerce, having served as a member of the Committee on Industrial Relations from 1910 to 1912, and he was chairman of the Special Committee on Federal Trade Matters in 1915 and 1916. During the past year he has been chairman of the Special Committee on Social Insurance. Now that the United States Government has secured his services, he will spend a large portion of his time in Washington. His new position is an important one, the duty of the priority committee being to determine what emergency measures should be given preferential treatment, and to decide which among the war orders being handled by the various industries should be given precedence.

McNAUL DEALERS AND AGENTS CONVENE.

The annual convention of the dealers and agents representing the McNaul Tire Co., Toledo, Ohio, was held in that city during the week of November 12. Daily sessions were held, during which comprehensive plans for increasing the business, including a national advertising campaign, were discussed. The visitors were afforded an opportunity to inspect the company's plants, and moving pictures of the manufacture of McNaul tires were shown at a local theatre during the week.

ARMY AND NAVY AWARDS.

ARCTICS FOR THE NAVY

THE following awards have recently been made by the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., for furnishing standard, first quality, four-buckle Portland gaiter arctics for the navy under Req. 311; price, $2.36 per pair:

The B. F. Goodrich Co., Akron, Ohio, 4,800 pairs.

LaCrosse Rubber Co., LaCrosse, Wisconsin, 12,000 pairs.

Mishawaka Woolen Manufacturing Co., Mishawaka, Indiana, 12,000 pairs.

Hood Rubber Co., Watertown, Massachusetts, 16,800 pairs.

Apsley Rubber Co., Hudson, Massachusetts, 6,000 pairs.

Converse Rubber Co., Malden, Massachusetts, 3,000 pairs.

Bourne Rubber Co., Providence, Rhode Island, 2,400 pairs.

United States Rubber Co., 1790 Broadway, New York City, 30,000 pairs.

Beacon Falls Rubber Co., Beacon Falls, Connecticut, 3,000 pairs.

Deliveries for above arctics to begin by November 15, contract to be completed December 15. Deliveries to be made to the provision and clothing depot, navy yard, Brooklyn, New York.

ARMY MEDICAL SUPPLIES.

The following awards have been made by the surgeon general of the army for furnishing medical supplies:

NOSE CLIPS.—20,000 nose clips with wire, $1,500; The B. F. Goodrich Co., Akron, Ohio.

RUBBER GLOVES.—1,000 pairs rubber gloves, medium, $277.78, and 1,000 pairs rubber gloves, heavy, $340.28; total, $618.06. Canfield Rubber, Co., New York City.

RUBBER SHEETING.—1,000 yards rubber sheeting, $950. Archer Rubber Co., New York City.

RUBBER SHEETING.—1,000 yards rubber sheeting, $900. C. Kenyon Co., New York City.

RUBBER SPRINKLERS.—2,500 hard rubber powder sprinklers, $703.13. American Hard Rubber Co., New York City.

FINGER COTS. 500 rubber finger cots, $44.17. Miller Rubber Co., Inc., New York City.

CUSHIONS. 360 surgical operating cushions, $1,116. United States Rubber Co., New York City.

RULERS. 7,200 hard rubber rulers, $945. American Hard Rubber Co., New York City.

RUBBER GLOVES. 2,220 pairs rubber gloves, $660. Faultless Rubber Co., Inc., Ashland, O.

RUBBER TUBING. 200 yards drainage rubber tubes, $2.34 pound; 200 yards drainage rubber tubes, $2.34 pound. Faultless Rubber Co., New York City.

NAVAL SUPPLY AWARDS.

The following awards have been made by the commissioners of the District of Columbia for furnishing annual supplies:

PACKING. Extra ring, for medium pressure, $1.10 pound. Extra spiral, $.90 pound. The Garlock Packing Co.

SHEET PACKING, 1/32 inch thick, Red Superheat, 50 cents pound, 1/16 and ⅛ inch thick, Red Superheat, 50 cents pound. Akron Red Sheet, 28 cents pound, all thicknesses, Akron Red Sheet, 28 cents pound. Akron Hydraulic, 35 cents pound. The B. F. Goodrich Co., Akron, Ohio.

The following awards have been made during November for furnishing supplies for delivery at various navy yards:

San Francisco, California. Two thousand feet rubber armored air hose, $1,070. Goodyear Tire & Rubber Co. One thousand pounds medium sheet rubber, $530. The B. F. Goodrich Co.,

Brooklyn, New York.—3,000 feet fuel oil rubber hose, $11,810. The B. F. Goodrich Rubber Co., Akron, Ohio.

Portsmouth, N. H.—Canvas, $19,698. Curran & Barry., New York City.

Boston, Mass.—3,000 yards white bag canvas, $28,800. Wellington, Sears & Co., New York City.

Norfolk, Va.—Hard sheet rubber and tubing, $820. American Hard Rubber Co., New York City.

JUDICIAL DECISIONS.

MUNGER v. PERLMAN RIM CORP., District Court, Southern District of New York, June 20, 1917.

Louis de F. Munger brought suit against the Perlman Rim Corp., alleging infringement on a patent for securing the rim to the wheel through tapering their adjacent surfaces and using a wedged piece to cause a tension to hold the rim in place.

Munger's patent was assigned to the International Wheel and Traction Co. in 1899, and a little later to the National Wheel Co., and was reassigned to the inventor just before the action was started. The patent expired on December 5, 1916.

The Perlman people manufacture a rim under a patent granted in 1913, and claim first, inoperativeness of the Munger patent, second, non-infringement, and third, invalidity.

The rule is well established that, when two machines are alike in their functions, combinations and elements, it is unnecessary to go further and inquire whether they are alike or unlike in their details.

Perlman claimed that the rim was not easily detachable with ordinary tools carried on the road, but this was disproved and that defense set aside.

The only difference in structure between the two patents is that the Perlman rim uses an annular strip between the two edges of the felly with which the rim is not in contact, being held therefrom by the wedge flange at the inner edge; while the Munger rim has the felly at an angle and a wedge used to bring the rim under tension. Therefore, the Court held the Perlman rim an infringement of the Munger patent.

The claim of invalidity was made because of a patent issued to Perkins & McMahon in 1843 for a detachable rim for vehicles. Although this was detachable, it was attached by hydraulic pressure and was not detachable with ordinary tools. The second patent suggested was that issued to Carberry by the British Patent Office, but does not involve the same principles as the Munger patent.

The delay in bringing suit, a serious consideration, was caused by the inability of the owners of the Munger patent to bear the expense of patent litigation.

A judgment was entered granting a decree for the plaintiff and directing the Perlman Rim Corp. to account before a master, and granting Munger recovery of a reasonable royalty. [Federal Reporter, volume 244, page 804.]

PERLMAN RIM CORP. v. FIRESTONE TIRE & RUBBER CO., District Court, Southern District of New York, August 11, 1917.

Louis H. Perlman, a witness in the above-named case, which was settled out of court, asked the court to prevent the use, before the Grand Jury, of the property belonging to him, which he had offered as evidence in that suit and was at present in the hands of the Clerk of the Court.

Mr. Perlman was about to be indicted on a charge of perjury and sought to prevent this, claiming that its use before the Grand Jury would be contrary to the Fourth and Fifth Amendments to the Constitution, which state that there shall be no unreasonable seizure of property nor shall a man be compelled to be a witness against himself. Perlman claimed that the delivery of the property would be, in fact, testimony against himself since he volunteered the use of the property. The court refused to grant the injunction. [Federal Reporter, volume 244, page 304.]

FARNHAM V. AKRON TIRE CO., Supreme Court of Washington, October 15, 1917; October 15, 1917.

The Akron Tire Co., rebuilders and dealers in automobile tires, contracted with E. P. Janes to sell him a definite number of tires per month, Janes acting as a jobber. They rented desk room to him in their offices. In March, 1916, Janes made a contract with Thomas Joyce to act as jobber for the Akron tires in the state of Washington. In the next month, Joyce sold to G. L. Farnham a quantity of tires and received at the time 25 per cent of the purchase price, or $750. In placing this contract, Farnham did not know what the relations were between the company and Joyce, but thought he was doing business direct with the Akron people. The order in due course got to the New York office of the Akron company, and the goods were shipped, the bill of lading with a draft attached being sent to a bank in Spokane. Farnham paid the draft and had the tires removed to his warehouse, where upon unwrapping them, he found them worthless. He refused to place them on sale and took the matter up with Joyce. The latter ordered them to be sold at the best price obtainable, the sale netting $687.40 after the cost of the sale had been deducted. A second order had been placed before the arrival of the lot but had never been filled.

The controlling question in the case is whether Joyce was in fact the agent of the Akron Tire Co., or, to state it otherwise, whether Janes was a mere figurehead acting in the capacity of a broker for the purpose of shielding the tire company from claims for damages from customers to whom they sold their worthless products. The trial court sustained the claim of agency and repudiated the thought that Janes was an independent jobber.

In the trial Superior Court, a judgment was entered against both Joyce and the Akron Tire Co., and the latter appealed. The Appellate Court remanded the cause, instructing the lower court to enter judgment of $3,334.56 in favor of Farnham. The Akron Tire Co. recovered costs for the appeal. [Pacific Reporter, volume 167, page 1081.]

TRADE MARK DECISIONS.

A somewhat unusual case of what is known in Great Britain as "passing off" was recently decided by the British High Court of Justice.

The manufacturer of raincoats and other waterproof materials under the trade name of "Mattamac" brought suit to restrain a competing firm from selling their own product as and for "Mattamac."

The latter concern received several orders for Mattamac goods and filled them with their product without any notice of the substitution being given the purchasers.

The fact that the seller did not know of the goods ordered at the time was not, the court held, sufficient justification for them to substitute their own product, since the orders referred to the goods desired and an advertisement of the same. Nor was the claim that a label in the goods disclosed the true maker sufficient notice of the change.

The court restrained the seller from similar action in the future. [Bulletin of the U. S. Trade Mark Assn., New Series, September, 1917.]

BRITISH PRIZE COURT DECISION.

Condemnation proceedings in the Prize Court. September 25 to 28 and October 2, October 12, 1917.

In the Prize Court on October 12, 1917, the president, Sir Samuel Evans, condemned 114 tons of rubber seized toward the end of 1914 while on its way from New York to Swedish ports. The whole lot was originally bought from Edward Maurer & Co., of New York City, by J. Ullman & Co., for whom W. G. Ryckman acted as broker. After the shipment had been made, 10 tons of the shipment were sold to Forsberg and Mark, of Gothenberg and Malmo. This material, described as "Gum," formed part of the cargoes of the steamships, *Flora, Bergensfjord, Tyr* and *Ran*.

The Court said that the substantial point to be determined was the real destination of the rubber at the time of seizure. The Crown contended that the rubber was really intended for Germany, while the owners claimed that it was for sale only to neutrals.

Jacques Ullman, the sole proprietor of the Ullman Company, was, at the outbreak of the European War, doing a general business in rubber in Hamburg, Germany, and decided to discontinue business in that city and remove his offices to Copenhagen. In order to do this, he sold out his stock in the German city and with the proceeds bought some 250 tons of rubber of which the seized goods were a part. He paid for this in cash and drafts through Danish Banks, although some of the money came originally from Germany. Ullman made it a practice, as he says—to get more insurance, of paying a considerable sum more than the actual price of the rubber in cash and then having the difference paid to his account. A copy of the inflated invoice was attached to the bill of lading, and the Crown suggested that it was a scheme whereby his customers were influenced to pay higher prices for the material.

Correspondence between Ryckman and Ullman prior to the declaration of rubber as contraband, October 29, 1914, showed that Ullman had not intended the material for German consumption. But it is quite certain that the goods sold to Forsberg & Mark were intended for Germany, although Ullman claims that he was ignorant of that fact at the time of the contract and only could have suspected it when he received credits through German banks in payment of the same.

As to the charge of misdescription of the material as "Gum," Ullman claims that this was done at the suggestion of the shipowners and that it was the only way in which they would accept the shipment. He also claims that there was no misdescription of the goods, in so far that gum was a common term in use in America and that the foreign names for the material all closely resemble that word. He also claims that he did not know that the goods were to be shipped under that name until after the shipment had been made. This statement was discredited by the prosecutor because Ryckman had wired Ullman that the shipment would have to be made under that name and Ullman made no reply. A number of letters and telegrams intercepted by the British Censor were used as evidence as well as the *Fridland* and *Kim* cases, in which Ullman was involved in a similar manner.

Respecting the claim of Forsberg & Mark it was found that, since part of this shipment was contraband, the whole under the doctrine of contagion, was to be condemned.

The President of the Prize Court condemned the entire 114 tons of rubber as good and lawful prize, but allowed leave to appeal within four months, security for costs being fixed to the amount of £700 for Ullman & Co., and of £200 for Forsberg & Mark. [India Rubber Journal.]

FIRESTONE-SEIBERLING SUIT REHEARING.

The United States Court of Appeals has reopened the Firestone-Seiberling tire building machine case for the hearing of new testimony before the United States District court at Cleveland, Ohio. The order following the discovery of a Belgian tire-building machine which is claimed to antidate the Goodyear-State patent.

NEW ZEALAND.

The total business in india rubber and its manufactures—tires not included—amounted to $237,755 in 1916 against $247,955 the year before. The imports of automobiles and tires increased $2,500,000.

Harvey S. Firestone Entertains.

AN occasion unique in the annals of the rubber trade was the entertainment of the directors and standing committees of the Rubber Association of America, Inc., by its president, Harvey S. Firestone, in Akron November 17 and 18. From the time of the arrival of the eastern delegation, which got into Akron about 8 o'clock Saturday morning, and where accommodations had been provided for them at the Portage Hotel, until the departure of the 5:30 train on Sunday night, life was just one pleasant thing after another for the Firestone guests. The program after arrival began with a visit to the Firestone rim plant and Firestone Park, after which luncheon was served at the Firestone club house. The entertainment committee helping Mr. Firestone to receive consisted of A. B. Jones, P. W. Litchfield, G. M. Stadelman, W. O. Rutherford, A. G. Partridge and J. W. Thomas.

HARVEY S. FIRESTONE.

The afternoon's entertainment consisted of a trip to the farm of Ohio C. Barber, the show place of its type in the State of Ohio, and the optional opportunity of attendance at the Army football game or of golf at the Portage Country Club. Crowning this exceedingly pleasant day was the dinner at the beautiful Portage Country Club, profusely decorated with the American colors. The banquet itself was beyond any question one of the best appointed and most charmingly arranged affairs possible to imagine. To quote from one of the guests, "the viands were delicious, the music superb and the wines superlative." Excellent post-prandial addresses then followed.

The host acted as toastmaster and opened the after dinner ceremonies by reading regrets from Governor Cox, of Ohio, Colonel Samuel P. Colt, U. S. Rubber Co., and Henry C. Pearson, editor of THE INDIA RUBBER WORLD. Mr. Firestone was particularly happy in his introductions of the various speakers, the first of whom, F. H. Goff, president of the Cleveland Trust Co., spoke of the seriousness of our national situation, giving many interesting and rather awe inspiring statistics in support of his statements. He alluded also to the marvelous development of the world's greatest rubber center and characterized this description as the "Romance of Akron." The next speaker was C. B. Raymond, vice-president of The B. F. Goodrich Co., whose remarks dealt with the development of Akron during his experience of 25 years, especially with the modest beginning of the great enterprise founded by the late Dr. Goodrich. F. A. Seiberling, president of the Goodyear Tire & Rubber Co., spoke of the importance of the rubber industry as a factor in the present war, stating in effect that there is no danger of rubber manufacture being classed by the government as among the non-essentials. Mr. Seiberling's remarks were characterized by a strong note of patriotism that found sympathetic reflection in the minds of all present. William J. Kelly, of Arnold & Zeiss, spoke in reminiscent vein of his early experience in selling crude rubber in Akron, incidentally remarking that there would always be Kellys and Kelly-Springfields in the rubber industry. Edgar B. Davis, plantation director of the United States Rubber Co., detailed interestingly the development of cultivated rubber and said that if the world today were dependent on wild rubber the cost of tires would be prohibitive. He also made emphatic allusion to the necessity for airplanes in large numbers as an indispensable factor in winning the war. Charles Neave, counsel of the Rubber Association of America, Inc., spoke of the rubber industry in its relation to the war, and the final speaker, Ernest Hopkinson, vice-president of the United States Rubber Co., presented the following resolution, which was unanimously adopted:

RESOLVED: That this association appoint a committee to study and determine how this association can best assist the government in the war, and particularly how to bring about the construction and utilization of aircraft in overwhelming numbers at the earliest

DIRECTORS AND STANDING COMMITTEE, RUBBER ASSOCIATION OF AMERICA, 1917-1918, TAKEN OUTSIDE THE FIRESTONE CLUB.

possible date; and to act in accord with any conclusions it may reach, to the end that the present horrible war against civilization may be ended by the complete victory of the Allies in the shortest time possible, and thereby maintain for ourselves and posterity the principles of human liberty.

This brought the dinner to a happy conclusion and the guests departed for their various homes and hotels to rest in preparation for the prospective and strenuous Sunday. The Sabbath program opened with a visit to "Stan Hywet," home of F. A. Seiberling, to which guests at the banquet had been invited by Mr. Seiberling in the course of his remarks. There the guests had the privilege of listening to the magnificent organ, which is one of the features of Mr. Seiberling's palatial home, and to several vocal selections by Mrs. Seiberling. Mr. Firestone's associates in the committee and directorate of the Rubber Association proceeded to the Firestone home and there disported themselves in the luxurious swimming pool, another attraction of Mr. Firestone's delightful residence. Dinner was served at 2 o'clock and from that time until 4.45 a most elaborate and enjoyable entertainment was provided. Directly after this the guests were transported to the railroad station and by the "Firestone Special" to New York. It was the candid expression of all that the two days just ended were a most delightful experience.

Following is a list of the guests:

LIST OF GUESTS.

H. S. Firestone
F. H. Goff
J. S. Lowman
Charles Neave
C. J. Butler
H. T. Dunn
Jesse La Dow
S. G. Carkhuff
Robert L. Rice
H. B. Manton
T. W. Miller
F. E. Myers
P. A. Myers
William J. Kelly
Edw. E. Huber
W. G. Ryckman
Jacob Pfeiffer
Van H. Cartmell
George B. Hodgman
H. S. Vorhis
C. L. Briggs
Seneca G. Lewis
F. A. Seiberling
Andrew H. Brown
C. I. Bruner
Amos C. Miller
W. H. Jenks
L. D. Brown
F. R. Henderson
William E. Bruyn
C. T. Wilson
Ernest Hopkinson
Edgar B. Davis
Russell Parker
G. A. Ludington
H. A. Galt
Frank H. Adams
F. T. Lahey
Henry L. Houk
John A. MacMillan
Crannell Morgan
C. W. Seiberling
G. W. Crouse
L. H. Firey
A. H. Noah
George M. Stadelman
C. C. Benner
C. W. McLaughlin
F. F. Nicola
H. W. Kugler
F. H. Mason
Alfred E. Osterloh
P. W. Litchfield
W. E. Palmer
John Herron
O. C. Barber
J. G. Robertson
H. W. Smith
R. E. Glass
H. J. Adams
W. H. Yule
W. C. Geer
P. E. Young
M. E. Ake
J. W. Thomas
Edw. F. Pfaff
Rev. G. P. Atwater
H. S. Hotchkiss
J. C. Weston
C. B. Raymond
L. E. Sisler
John Gammeter
A. B. Jones
Walter Bass
Hugh Allen
R. J. Firestone
C. A. Myers
E. S. Babcox
Fred Harpham
D. M. Mason
I. R. Bailey
E. R. Held
William F. Pfeiffer
W. O. Rutherford
H. K. Raymond
J. P. Loomis
Thomas F. Walsh
Ross F. Walker
A. G. Partridge
R. E. Lee
H. M. Houser
Jacob Mosser
William Stephens
T. C. Marshall
E. S. Firestone

The Oak Tire & Rubber Co., Limited, Toronto, Ontario, whose incorporation is mentioned elsewhere in this issue, has opened its new factory at Oakville, Ontario. The building is a four-story structure, 200 by 60 feet, constructed of reinforced concrete, brick and glass. The plant is run by electric power and adjoins the railway station, a railway siding extending its entire length. Six and one-half acres of land adjacent to the factory have also been purchased by the company, and the erection of another factory next spring is contemplated. In addition to the output of tires and tubes, the Oak Fibre Sole, a new substitute for leather footwear, is also being manufactured. Frank Law is managing director of the company.

THE RUBBER ASSOCIATION OF AMERICA.

AT a meeting of the Rubber Advisory Committee, held October 31, it was unanimously voted that the charge made by the association for filing and examining copies of the British rubber guarantee covering consignments of rubber arriving at New York, shall be five cents a case on and after November 1, 1917. This charge takes the place of the former charge of six cents a case.

MEETING OF THE EXECUTIVE COMMITTEE AND BOARD OF DIRECTORS.

A joint meeting of the Executive Committee and Board of Directors was held November 17, at the Firestone Club, Akron, Ohio, with the following present: EXECUTIVE COMMITTEE—Harvey S. Firestone, chairman; George B. Hodgman, William E. Bruyn, Van H. Cartmell and Paul W. Litchfield. BOARD OF DIRECTORS—Harvey S. Firestone, William E. Bruyn, William J. Kelley, Van H. Cartmell, H. Stuart Hotchkiss, Paul W. Litchfield, J. S. Lowman, W. O. Rutherford and Charles T. Wilson.

The following firm and associate members were elected:

FIRM MEMBERS AND REPRESENTATIVES.

The Punctureless Auto Tire Co., D. A. Messer, Akron, Ohio.

Carlisle Tire & Rubber Co., Charles S. Mooney, Carlisle, Pennsylvania.

Smith & Schipper, Ripley Ropes, 91 Wall street, New York.

A. R. Brown, McFarlane & Co., Limited, D. Inglis Short, 120 Broadway, New York.

John W. Greene & Co., Walter C. Hathaway, 99 John street, New York.

Edward B. Fulper, E. B. Fulper, Trenton, New Jersey.

ASSOCIATE MEMBERS.

Ernest Schulthess, Gutta Percha & Rubber Manufacturing Co., 126 Duane street, New York.

Charles Muller, Standard Emarex Co., 208 La Salle street, Chicago, Illinois.

William M. Morse, THE INDIA RUBBER WORLD, 25 West Forty-fifth street, New York.

Robert C. Fisher, United States Rubber Co., 1790 Broadway, New York.

George E. Pell, Pell & Dumont, 68 Broad street, New York, was transferred to firm membership.

RUBBER COMMITTEE OF ADVISORY COMMISSION DISSOLVED.

Rubber manufacturers and importers were notified on November 22 that the Committee on Rubber of the Advisory Commission of the Council of National Defense, consisting of H. Stuart Hotchkiss, chairman, Arthur H. Marks, Frederic C. Hood and H. S. Vorhis, secretary, has been formally dissolved.

SINGLE TRADE MARK REGISTRATION.

In order to register a trade mark in the United States patent office for a complete line of rubber goods, it is necessary to make twelve separate applications—a ruling that does not apply to other lines of manufacture. For instance, a glass manufacturer registers one trade mark for the entire product, so long as they are made of glass, regardless of quality, shape, size or any other distinctive feature. This is also true of tobacco products, crockery, earthenware, oils and greases, a single registration covering the entire field.

Another marked disadvantage is the tendency of foreign countries to follow the United States' classifications and prescribe twelve applications that are expensive and often prohibitive.

A petition addressed to the Commissioner of Patents, which explains the situation in detail, has been sent to all rubber manufacturers for signature, requesting that they be returned to the office of the association. A formal protest, urging a single trade mark registration for all rubber products, will then be made to the Commissioner of Patents, signed by all companies replying to this communication.

The Obituary Record.

NEWSPAPER MAN AND RUBBER DEALER.

LAURENCE M. BYLES, the New York selling agent of C. W. Mackie & Co., of Colombo, Ceylon, died at Long Island College Hospital, Brooklyn, New York, on October 28, after a brief illness.

LAURENCE M. BYLES.

Mr. Byles was born in England in 1876. After completing his education and a short business training in the well-known publishing house of Unwin's, he started out as a newspaper man. He was connected with several important English papers, but his main success was independent work on labor and West African news. In 1898 he was taken seriously ill, and was under treatment for two years. In 1900 he went to the Northwest provinces of Canada to write up the land question for a syndicate of London papers. This work completed, he decided to stay on this side of the ocean, and formed successively connections with several Canadian and American papers. In 1904, at the time of the packers' strike, he was sent for by Morris & Co., the Chicago packers, and for six years was in their employ. In 1910 he joined his brother, W. E. Byles, in New York, and when the latter went to W. R. Grace & Co. in 1913, to take charge of their rubber department, L. M. Byles secured his brother's former agency for C. W. Mackie & Co., which he managed with marked success to the end.

Mr. Byles in 1906 married Miss Jane M. Sirch, of Chicago, Illinois, who survives him. He left no children.

HEAD OF THE MUSEU GOELDI.

Word has been received of the death of Dr. Emilio A. Goeldi, in whose honor the great museum at Para, Brazil, was named. As Dr. Goeldi was the moving spirit in the investigation of the rubber producers of South America, and, indeed, as he stood sponsor for the late Dr. Jacques Huber in his rubber explorations and *Hevea* studies, his career is of special interest to the rubber trade.

This eminent naturalist was born in Ennetbühl, Obertoggenburg, Switzerland, August 28, 1859. After his matriculation at Schaffhausen, he taught school at Befeux and Neuville. He then worked at the Zoological station at Naples. Later, while studying at Jena, he acted as assistant to Haeckel, the noted naturalist. His further studies at Leipzig and Berlin, fitted him for scientific work, and after teaching for a short time he went to Rio de Janeiro as assistant director of the Museo Nacional. Under the direction of the national board of agriculture he made several exploring trips into the interior. With the fall of the monarchy, his activities at Rio de Janeiro closed, and after a short term as successor to Eugen Maher as manager of the Alpina Colony in the Monte das Trombas, he undertook, in 1894, the rehabilitation of the Museu Paraense, at Para. This he reorganized, founded a botanical and zoological garden, and made it one of the leading institutions of its kind in South America. By a decree December 1, 1900, in recognition of his services, the name was changed to Museu Goeldi de Historia Naturel e Ethnographia. Later Dr. Goeldi returned to Europe, and resided at Berne, Switzerland, but since his retirement his name has been given in the official "Boletims" as Honorary Director. He enriched zoology with 232 new species and 19 genera, and published many treatises in the bulletins of the museum. In addition, he was the author of several works on Amazonian zoology, among which his "Album of Amazonian Birds," showing these life size in natural colors, is especially notable.

It was at the Museu Goeldi also that an experimental station was instituted, where *Hevea* was studied and where many experiments in tapping, smoking and preparation for the market were investigated under the direction of the late Dr. Jacques Huber, who succeeded Professor Goeldi as director.

A VETERAN MOLD MAKER.

William J. Eggers, who has been known in the rubber trade for many years as an expert mold maker, died of pneumonia, November 15, at his home in Brooklyn, New York, aged 65 years. He was born in Bremenhaven, Germany, in 1852, and acquired his mechanical knowledge in the severe and exacting German school of practical mechanics. At the close of the Civil war he came to this country and became a naturalized citizen of the United States in 1873.

W. J. EGGERS.

For the last 33 years he had been actively engaged in business for himself and became prominently identified as an authority in the manufacture of molds for the rubber trade, being well versed in the manufacture of rubber goods. He was the inventor of many improvements in mold construction, notably that employed in making air vulcanized, seamless, molded rubber articles such as balls, water bottles and inner tubes. He leaves a widow, three sons and two daughters.

William Eggers was of a quiet friendly disposition, absolutely devoted to his home and profession, and will be long remembered by his friends in the trade as a most estimable citizen and a master workman.

MEMBER OF A NOTED FAMILY.

Rev. James F. Hill, a noted member of the Baptist denomination and pastor of a church at Northfield, Minnesota, died in that city November 21, aged 78 years. He was a cousin of E. S. Converse, founder of the Boston Rubber Shoe Co., brother of William G. Hill, the genealogist of the Converse family, and uncle of William G. Hill, Jr., vice-president of the Apsley Rubber Co., Hudson, Massachusetts.

A RUBBER CHEMIST.

Word has just been received of the death of Second Lieutenant George M. Carruthers, who was attached to the 11th Lancashire Fusiliers. For some time he was employed in the laboratory of the Dunlop Tire & Rubber Goods Co., Limited, Toronto, Canada. His relatives reside in Rutherglen, Scotland. He is the third of the Dunlop laboratory staff to meet death in the last two years.

News of the American Rubber Trade.

FEDERAL RUBBER COMPANY'S SALES CONFERENCE.

THE district managers and representatives of the Federal Rubber Co. held a conference at Cudahy, Wisconsin, from October 23 to 27, when the sales and advertising plans for the coming year were discussed.

The four-day session was by far the most successful of its kind ever arranged by the Federal officials. When the 65 salesmen who attended were not profiting by instructive talks at round table conferences, they were making the most of the elaborate program provided for their entertainment.

Among those who spoke at the general conferences held each morning and afternoon in the administration building at the factory were: A. A. Frank, "Factory"; Charles Measure, "Mechanical"; H. A. Githens, "1918 Sales Policy" and "Facts and Figures"; A. L. DeVault, "Special Brand Sundries and Tubes"; D. H. Roberts, "Bicycle Tires and Repair Material"; A. J. Zeally, "The 1918 Advertising Campaign"; J. M. Tait "Relation of Credits to Sales" and "Credits and Collections"; G. H. Hamilton, "Representing the Company"; A. H. Wilson, "Service," and R. M. Lauer, "Accounting Methods."

COMMODORE BENEDICT RETIRES.

After sixty years of active business in Wall street, Commodore E. C. Benedict, senior partner of E. C. Benedict & Co., bankers and brokers, 80 Broadway, New York City, has withdrawn from the firm bearing his name, and which will be continued by the remaining partners. He is the third oldest member of the New York Stock Exchange in the order of their admission, and has long been closely identified with the rubber plantation and manufacturing industries, being at one time director of the United States Rubber Co.

Commodore Benedict's love of outdoor life and sport, particularly fishing, won the firm friendship of former President Cleveland, Rear Admiral "Bob" Evans and Joseph Jefferson, the actor, with whom his name has frequently been associated, and all of whom he has outlived. Outspoken in his patriotism, he casts aside restraint when referring to the disastrous effects of the war upon his chosen pastime, and openly states his personal grudge against the Kaiser. Says he: "A few years ago Long Island Sound was one of the finest fishing grounds for small mackerel. There are none left now, but dead ones are seen everywhere. It seems that they have been killed by the mine explosions incident to the war. Plum Gut especially was rich in fish, but the gun practice at the Plum Island forts has driven the blackfish away. Damn the Kaiser!" It was only an afterthought, but it carried emphasis.

DIVIDENDS.

The Plymouth Rubber Co. has declared a quarterly dividend of 1¾ per cent on preferred stock, payable December 1 to stockholders of record November 24.

The Republic Rubber Co. has declared its regular quarterly dividend of 1¾ per cent on preferred stock, payable December 1 to stockholders of record November 20.

The Fisk Rubber Co. has declared a quarterly dividend of 1¾ per cent on second preferred stock, payable December 15 to stockholders of record, November 5.

RUBBER COMPANY SHARE QUOTATIONS.

The following market quotations of shares of rubber manufacturing companies on November 24 are furnished by John Burnham & Co., 115 Broadway, New York City, and 41 South La Salle street, Chicago, Illinois.

	Bid.	Asked.
Ajax Rubber Co. (new)	48	50
Firestone Tire & Rubber Co., common	96	100
Firestone Tire & Rubber Co., preferred	96	100
The B. F. Goodrich Co., common	36	36¾
The B. F. Goodrich Co., preferred	91	93
Goodyear Tire & Rubber Co., common	145	150
Goodyear Tire & Rubber Co., preferred	93	96
Kelly-Springfield Tire Co., common	41	43
Kelly-Springfield Tire Co., preferred	77	83
Miller Rubber Co., common	110	115
Miller Rubber Co., preferred	95	99
Portage Rubber Co.	103	107
Swinehart Tire & Rubber Co.	..	26
United States Rubber Co., common	51½	52¼
United States Rubber Co., preferred	95	97¼

GOODYEAR BUILDS AN INDUSTRIAL VILLAGE IN CONNECTICUT.

Mention has been made in this journal of the building of nearly 100 cottage homes and a large hotel at Goodyear, Connecticut. A photograph of a section of this new development is presented herewith. It is a notable fact that although the work was done in the severe season of a New England winter, only three months were required to lay out the streets, complete the houses, hotel, a seven-story storehouse, and construct a water supply extension and a sewer nearly a mile long. The village is for the housing of employes of the Goodyear Cotton Mills, Inc., which is identified with the Goodyear Tire & Rubber Co., Akron, Ohio.

EMPLOYES' HOMES AT GOODYEAR, CONNECTICUT.

PERSONAL MENTION.

Carl F. Siemon, of the Siemon Hard Rubber Corp., Bridgeport, Connecticut, has been appointed chairman of the local committee representing the United States Fuel Administration.

W. S. Hayes, for several years New York manager of the Lenox Chemical Co., Cleveland, Ohio, has accepted a position with the L. H. Butcher Co., 100 William street, New York City.

A. L. Hatch, who has been associated for 16 years with The Seamless Rubber Co., New Haven, Connecticut, has tendered his resignation, to take effect January 1.

C. B. Whittelsey, vice-president and factory manager of the Hartford Rubber Works Co., Hartford, Connecticut, has been nominated for treasurer of the Society of Automotive Engineers on an exceptionally strong ticket.

Raymond B. Price, vice-president of the United States Rubber Co., New York City, in charge of the development department, is treasurer of the Patriotic Education Society, Inc., New York City, which is presenting important truths for a more united and effective America. Mr. Price's article, "Must American Lives Pay for Our Transportation Deficiencies," contains many valuable suggestions.

Frank G. Carpenter, the well-known author of geographical readers, has turned his attention to Akron, Ohio, "the city of standing room only." In a syndicated newspaper article recounting the phenomenal growth of the rubber industry there, he places rubber as the third great necessity of our armies in Europe. The first necessity, he states, is food; the second is munitions, and the third is rubber, which has to do not only with transportation, but with nearly every other branch of modern warfare.

E. H. Olimb has resigned from the sales organization of The B. F. Goodrich Co., Akron, Ohio, having accepted a position as district manager with the Lancaster Tire & Rubber Co., Kent, Ohio. He will also be responsible for the advertising of the tires manufactured by this company.

G. W. Henne, general manager of The Mansfield Tire & Rubber Co., Mansfield, Ohio, recently read a paper, "Financing an Industry," before the Mansfield Chamber of Commerce Forum.

The Mason Tire & Rubber Co., Kent, Ohio, has recently added Lawrence Broering to its Chicago, Illinois, selling force, and he will represent the company's interests in Indiana. He was at one time with the Indianapolis branch of the Goodyear Tire & Rubber Co., where he occupied the position of assistant manager. Later, he was associated with the Miller Tire & Rubber Co.'s branch in that city, in a similar capacity, leaving this position to join the Mason Tire company.

W. E. Wullenweber, formerly chemist for the Morgan & Wright Rubber Works at Detroit, Michigan, has resigned his position and is now with The McGraw Tire & Rubber Co., of East Palestine, Ohio.

H. G. Rowe, for 22 years foreman of the cement department of Morgan & Wright, Detroit, Michigan, has resigned his position.

E. R. Anderson, for a number of years with the Spokane, Portland & Seattle Railroad Co., has been appointed manager of the Lambert Multiplus Co., manufacturer of tires, Portland, Oregon.

Edward J. Smith is now manager of the Hartford, Connecticut, division of the Goodyear Tire & Rubber Co.

Stanley M. Cramer, of the advertising department of the Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio, is now at Camp Sherman, Chillicothe, Ohio, with the other members of the Akron contingent.

George B. Cary has recently been appointed Chicago representative of the Krebs Pigment & Color Co., with offices at 327 South La Salle street. Prompt shipment of urgent orders will be made from stock carried in a local warehouse.

RUBBER MAN HEADS BOSTON FEDERAL RESERVE BANK.

CHARLES A. MORSS, treasurer of the Simplex Wire & Cable Co., Boston, Massachusetts, and a member of the Rubber Club of America, Inc., has been elected governor of the Federal Reserve Bank of Boston, to succeed Alfred L. Aiken, who will assume the presidency of the National Shawmut Bank of that city, January 1, 1918.

Champlain Studios.

CHARLES A. MORSS, GOVERNOR, FEDERAL RESERVE BANK OF BOSTON.

Mr. Morss has been connected with the Simplex Wire & Cable Co. and its predecessors since 1889, and has held the position of treasurer since its incorporation in 1895. He occupies the same position with the Simplex Electric Heating Co. and the Morse & Whyte Co., in Boston, and has been a director of the Federal Reserve Bank since its organization. Prominent in business affairs, he is a member of the Chamber of Commerce of the United States, the Boston Chamber of Commerce, and Underwriters' Laboratories Industry Conference for Rubber Covered Wires and Cords.

GOODRICH PROMOTIONS.

The exigencies of war and other necessities have brought about the following changes in the branch administration department of The B. F. Goodrich Co., Akron, Ohio:

Carl A. Tanner, who formerly represented the company at Richmond, Virginia, is now manager of the Baltimore, Maryland, branch, replacing George P. Dean. E. M. Latham, of the branch at Los Angeles, California, is manager of the Salt Lake City, Utah, depot. Charles Boutell succeeds John T. Kemp as manager of the Birmingham, Alabama, branch, the latter being needed at the company's Akron factory for government work. E. D. Yount has been appointed local manager of the South Bend, Indiana, depot, replacing W. W. Vandeveer, who has been transferred to the Goodrich Sales School. Other recently appointed local managers are now in charge of the following depots: J. W. Moore—Fort Worth, Texas; F. S. McNaul—Hutchinson, Kansas; W. J. Balaun—Waco, Texas; and F. T. Reuter—Oklahoma City, Oklahoma. W. F. Burbank succeeds A. E. Lees of the San Diego, California, depot, and S. S. Clark assumes charge of the one at Salina, Kansas. T. B. Graham becomes operating manager of the Seattle, Washington, branch, replacing C. J. Pomeroy, who has entered the Government's service.

J. E. Powers, formerly manager of the Buffalo, New York, truck tire sales department, has been placed in charge of all truck tire sales of the New York branch. He is succeeded at the Buffalo branch by J. A. Reed, former Pittsburgh manager of truck tire sales.

TRADE NOTES.

A rubber substitute of special quality adapted for use in high grade goods has been developed by Dr. Hugo H. Harding and is being manufactured by him at his laboratory, 5540 Kimbark avenue, Chicago, Illinois. This material, as yet, has no particular designation but is sold under plain stock numbers.

The Electric Hose & Rubber Co., Wilmington, Delaware, has recently become a member of the Rice Leaders of the World Association, an advertising organization representing many well-known manufacturers in various industries. Another representative rubber concern, which had previously joined the Rice Association, is the Faultless Rubber Co., Ashland, Ohio.

The English Mica Company's plant is located at Spruce Pine, North Carolina, with headquarters at Williamsport, Pennsylvania. This company manufactures water-ground mica, which is used extensively in the rubber trade.

The L. H. Butcher Co., San Francisco and New York, notice of whose incorporation appears elsewhere in this issue, will deal in colors and chemicals for the rubber trade. The officials are F. L. Schwartz, president; J. E. Schwartz, vice-president—both of San Francisco, California, and Virgil G. Thomas, treasurer and secretary, New York City. Principal office will be at 100 William street, New York City.

The Mulconroy Co., Chicago, Illinois, has opened a new store at 553 West Van Buren street, under the management of S. E. Lineaweaver, formerly manager of the company's store at Pittsburgh, Pennsylvania. The company manufactures hose, couplings and leather-soled rubber boots.

The Wilson Rubber Co., Canton, Ohio, maker of electricians', surgeons' and household gloves, has increased its capital stock from $40,000 to $75,000. The company is erecting two new buildings, one a three-story structure, 50 by 125 feet, and the other a 30 by 40 foot boiler house and tool shop. The buildings will cost about $30,000 and are situated on a recently purchased site with 300 feet frontage on the Pennsylvania Railroad. The company has been in active operation a little less than a year and expects to double its present capacity by February 1, 1918. The officers are: John S. Willis, president; Fred J. Wilson, vice-president and general manager, and Wendell Herbruck, secretary and treasurer.

The Chicago branch of the Hamilton Rubber Manufacturing Co., Trenton, New Jersey, has recently been moved from 1229 South Michigan avenue to more convenient quarters at 218 North Fifth avenue. Elmer E. Bast, who has represented the company in Chicago for nearly 20 years, is in charge.

The American Safety Hair Cutter Corp., of New York City, has increased its capital stock from $6,250 to $10,000, and 1,250 shares, no par value, to 2,000 shares, no par value.

Three hundred representative New York rubber men carried torches, flags and red fire in the Mitchel Torch Light Parade that was held Thursday night, November 1. Robert C. Fisher, United States Rubber Co., New York City, was marshall.

C. F. Braund has joined the sales force of Stresen-Reuter & Hancock, Inc., Cleveland, Ohio, and will have charge of the buying and selling of the rubber chemicals and colors handled by this firm.

Harrisons, Inc., Philadelphia, Pa., makers of "Beckton White," have opened a sales office at 80 Maiden Lane, New York City, under the direction of S. B. Woodbridge, assistant general sales manager.

The Birmingham Iron Foundry, Derby, Connecticut, has established a demonstration room in the factory where practical tests of their new mixing mill are being made. The trade are invited to try out their own material on this machine.

The business of William Eggers & Sons, 294-296 Taaffe place, Brooklyn, New York, will be continued by Walter A. and William H. Eggers, sons of the late William Eggers, who are practical rubber mold makers.

The American Rubber Co., Oakland, California, has received the city contract for making dredger sleeves for the municipal dredges.

The American Scrap Rubber Co., Baltimore, Maryland, has recently petitioned the court for permission to dissolve. The petition stated that there were no assets and that all liabilities had been liquidated.

It is said that the stock of the Republic Rubber Co., Youngstown, Ohio, may shortly be listed on the New York exchange. William M. Coleman of New York City, representing eastern financial interests, has been added to the board of directors.

The Cleveland branch of the Pennsylvania Rubber Co., Jeannette, Pennsylvania, has been moved from 1921 Euclid avenue to more commodious quarters at 4501 Euclid avenue.

The Lycoming Rubber Co., Williamsport, Pennsylvania, is erecting four new additions to its plant in that city. These comprise a two-story vulcanizer building, 70 by 40 feet; two five-story manufacturing buildings, one 60 by 240 feet, the other 60 by 178 feet; and a three-story manufacturing building, 50 by 90 feet. Plans are also under consideration for a new power plant. The rapid growth of the company is demonstrated by a comparison of the original 103,000 square feet of floor space with the 298,000 square feet available upon the completion of the present building operations.

OPENS PACIFIC COAST BRANCH.

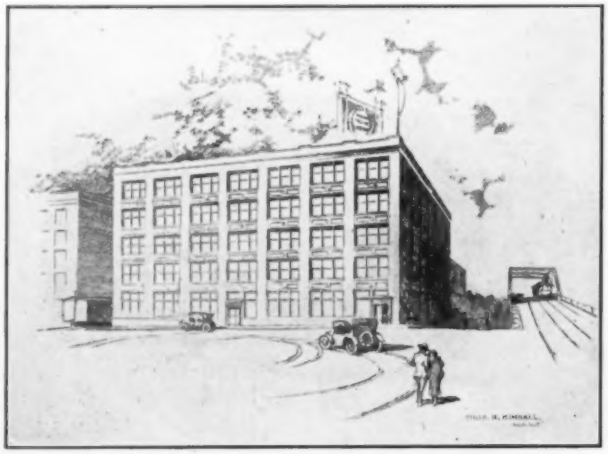
In order that western trade may be better served, Katzenbach & Bullock Co. has established offices in the Monadnock Building, San Francisco, California, under the management of W. C. Todd.

Katzenbach & Bullock service now spans the continent, with offices in Boston, New York, Trenton, Chicago and San Francisco, and warehouse stocks at other important industrial centres.

Casper Smith, for several years manager of the company's Chicago office, has been transferred to New York, where he will be in charge of sale matters; and Calvin Stitt, former Boston manager, has taken over the management of the Chicago office.

THE NEW OMAHA HEADQUARTERS OF THE UNITED STATES RUBBER CO.

The accompanying illustration shows the new office and warehouse building now being erected for the United States Rubber Co., at Omaha, Nebraska. It is constructed of reinforced concrete, faced with fire brick, and contains 104,544 square feet of floor space. The building will be ready for occupancy January 1 and will be one of the finest office and warehouse buildings in the city.



TRADE NOTES.

The Para Auto Tire Co., Chicago, Illinois, will in future have charge of the sales department of the Century Rubber Works in that city. The latter company specializes in the manufacture of automobile casings in Ford sizes, together with inner tubes.

The Normandy Tire & Rubber Co., Limited, Toronto, Ontario, has erected a plant at St. Catherines, Ontario. In addition to manufacturing various lines of rubber goods, the company will make a specialty of the Normandy Puncture Proof tire.

The Plexus Tire & Rubber Co., Philadelphia, Pennsylvania, notice of whose incorporation appeared in the November issue of THE INDIA RUBBER WORLD, is completing a new factory at Tacony, Pennsylvania. The building is 130 by 350 feet and is located on a tract of land at State Road and Levick street.

About 200 girls are employed in the Morgan & Wright tire plant at Detroit, Michigan. They are actually building tires and are said to perform their tasks in a satisfactory manner.

The Lincoln Highway Tire Co., Fulton, Illinois, expects to have its new plant in operation by January 1, 1918. The building will have a floor space of 50,000 square feet and a capacity of 1,000 tires and tubes per day, this output eventually to be doubled. M. S. Ackles is president and general manager of the company, and S. Ross Vasbinder is factory manager.

The Great Republic Tire & Rubber Manufacturing Co., McAlester, Oklahoma, has contracted with The Consulting Co., Cincinnati, Ohio, for the construction of a tire plant in McAlester. The company has purchased several existing buildings, covering approximately 35,000 square feet, and these are to be converted into a modern plant. The present offices of the company are at Muskogee, Oklahoma, but in the near future they will be moved to McAlester and connected with the plant.

The Hewitt Rubber Co., Buffalo, New York, is not building a tire factory at Youngstown, New York, as reported. This company is rearranging the mechanical rubber goods department in the present factory and adding new equipment to increase production. Tire and tube equipment will be installed and ready for a limited production of tires shortly after the first of the year.

The General Tire & Rubber Co.'s agency for Omaha and the surrounding territory has been taken over by C. B. Adair and G. G. Lee, and the new company will be known as The Adair-Lee Tire Co. Mr. Adair has been with the General Tire company since its first inception, having been Chicago district manager, while Mr. Lee has been salesman for The General Tire Agency, Kansas City, Missouri.

The Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio, has appointed Pierre Blommers, formerly New York manager, special factory representative, with headquarters in Cuyahoga Falls. P. L. Niles, previously western manager of the Kansas City, Missouri, branch of the Republic Rubber Co., will succeed Mr. Blommers as New York manager.

The McGraw Tire & Rubber Co., East Palestine, Ohio, is building a new warehouse, 288 feet long by 60 feet wide, which will be fully equipped with conveyors for unloading and distributing incoming shipments, also for loading and conveying raw materials to the factory. The building will be completed and ready for occupancy by December 1.

The company has appointed R. G. Nelson superintendent of districts, with supervision over all district offices and sales promotion work. C. E. Pumphrey, formerly district manager at St. Louis, Missouri, assumes the duties of assistant sales manager, with headquarters at East Palestine. R. J. Delavan, who has been serving the company as a special representative, becomes St. Louis district manager.

The Kokomo Rubber Co., Kokomo, Indiana, has increased its capital stock from $200,000 to $1,000,000, $250,000 being preferred and the balance common. The preferred stock has been sold and the majority of the proceeds turned into the company's treasury. For additional working capital, $600,000 of the common stock has been issued, the remaining $150,000 capital being retained in the treasury. At the present time, the company is turning out 300 casings per day and expects to increase this production.

The Sprague Tire & Rubber Co., Omaha, Nebraska, whose incorporation is mentioned in this issue of THE INDIA RUBBER WORLD, will erect a factory in Omaha for the manufacture of tires and tubes. E. H. Sprague is president and treasurer; Francis Ferns, vice-president, and E. E. Harding, secretary.

The general and executive offices of the Johnstone Tire & Rubber Co., formerly the Globe Tire Co., are still in The Peoples Gas Building, Chicago, Illinois, according to information just received. The officers of the company, whose organization remains unchanged, are: Sherman Steel, president and general sales manager; and C. W. Mussey, treasurer and assistant secretary. Both have their headquarters at the above address in Chicago. A. A. Peterson is factory manager and superintendent, with headquarters at La Porte, Indiana, where the company's factory is located. Samuel Johnstone, of 52 West Chippawa street, Buffalo, New York, is a director of the company.

The Thermoid Rubber Co., Trenton, New Jersey, has made a number of additions to its sales force, to cover the following territory: C. E. Scheible and E. O. Girard—New York state: A. R. Hodge—New York City, Brooklyn and Long Island. (Mr. Hodge has served with the English army in France for two or three years and holds an honorable discharge from the English government); F. L. Kimberley—Connecticut. J. Simoni and H. M. Turner are recent additions to the Indianapolis branch of the company, while the Chicago branch has added H. B. Bower and R. Moeller to its sales force.

The Perfection Tire & Rubber Co., Chicago, Illinois, is making several additions to its plant at Fort Madison, Iowa. A mill room, one story and basement, in which a calender and three mills are being installed, and a 60 by 24 foot addition to the power house have just been completed; a new unit of three stories and basement, 250 by 60 feet, also an office building and shipping room 100 by 55 feet will soon be finished. Ten dwellings for the company's employes are nearly completed, and ground has been broken for eleven more.

The Norfolk Tire Fabric Co. has purchased a site in Norfolk, Virginia, on which it proposes to erect a $300,000 plant.

The general offices of the Lee Tire & Rubber Co. have been removed from Conshohocken, Pennsylvania, where the factory is located, to 245 West Fifty-fifth street, New York City. This change includes all departments, with the exception of the manufacturing department—the object being to provide additional floor space at the factory for manufacturing purposes, and also to bring the executive and selling organizations to a more central point than Conshohocken.

William A. Reynolds, of the Goodyear Tire & Rubber Co., Akron, Ohio, has been appointed manager of the company's mechanical goods department, New York district, replacing A. A. Lyon, who takes up special work. W. R. Bliss is New York City district manager of the company, with headquarters in Long Island City.

The Gillette Rubber Co., Eau Claire, Wisconsin, is adding a new boiler plant to its factory, to cost approximately $65,000. The plant will be ready for operation on December 1, and will have a product of about 1,000 tires per day.

The Des Moines branch of the Portage Rubber Co., Akron Ohio, has been moved from 1013 Locust street to 1009 Locust street. E. R. Mohnsen and P. J. Morlock have recently been added to the Des Moines sales force of the company.

Byron G. Dowse, for many years prominently identified with various rubber manufacturing interests, has formed the Dowse Rubber Co., with an authorized capital stock of $2,500,000. The headquarters of the company will be in Chicago, Illinois, and it will manufacture tires and mechanical goods.

UNITED STATES TIRE SALESMEN IN CONVENTION.

THE United States Tire Company's convention of salesmen, held at Detroit, Michigan, October 30 to November 1, was attended by 500 representatives of the company's sales staff. After the song, "America," J. C. Weston formally opened the convention and announced the company's object in bringing the salesmen together.

President James N. Gunn then extended a cordial welcome and emphasized the fact that every man was expected to do his duty at this time, whether in the trenches or on the road. And the fulfillment of that duty to the organization he represents, is to achieve a high standard of business integrity.

A broad visioned outline of the sales policy for the coming year was the subject of J. C. Weston's address, in which he stated, that quality of product and a sound and fair selling policy were the two fundamentals of a successful sales organization. O. S. Tweedy then talked on the subject of selling United States tires, and during the afternoon session F. I. Reynolds spoke on distributors' sales, followed by a spirited address by G. S. Schugart, on Western trade development. Dr. William S. Sadler addressed the convention at the dinner held at Hotel Pontchartrain in the evening, on "Why We Are at War."

Everyone was present at Wednesday's session, when R. W. Ashcroft spoke on "Product, Policy, Push and Publicity" in his usual terse, masterful manner. Then followed interesting talks by representative salesmen on helping dealers, business building, and how to sell tires, when the convention adjourned for an afternoon visit to the Morgan & Wright factory. After dinner at Hotel Pontchartrain, there were addresses by Norval A. Hawkins and Edgar B. Davis.

Enthusiasm and intense interest characterized the last day of the convention, particularly during the afternoon session, when able addresses were made by department heads. John Williams spoke on credits and collections; P. O. Eckhardt, on system, and Dr. T. Whittlesey talked about tire performances. "Raynsters" was W. Lincoln Green's subject, and G. H. Mayo and J. C. McMichael spoke on "Keds."

The closing event of the convention was the dinner at Hotel Statler on the evening of November 1. Col. Samuel P. Colt, the principal speaker, was unable to attend. The other speakers were, Elisha S. Williams, Ernest Hopkinson, Homer E. Sawyer, James N. Gunn and T. H. Rieder.

"Our Horn," published by the United States Tire Company for distribution among the company's many salesmen and dealers, was issued every day during the convention. The daily program, portraits of officials, and abstracts of the various papers were featured in each issue that contained, moreover, a wealth of pictured fun and witty persiflage.

NEW INCORPORATIONS.

AIRLITE Rubber Manufacturing Co., Inc., The, November 8 (Delaware), $1,000,000. C. L. Rimlinger, M. M. Clancy—both of Wilmington, Delaware, and C. M. Egner, Elkton, Maryland. To manufacture and deal in rubber goods of all kinds.

American Scrap Rubber Co., May 30 (Maryland), $50,000. I. Goldstein, A. Goldstein and H. M. Siegel. Principal office, 1540 Ridgley street, Baltimore, Maryland. Buy, sell, exchange, strip, assort and reclaim scrap rubber and waste material; to manufacture articles from scrap rubber.

Autocrat Tire & Rubber Co., Inc., October 11 (New York), $500. G. H. B. Martin, Philadelphia, Pennsylvania; S. C. Seymour, Camden, New Jersey, and J. F. Curtin, New York City. Principal office, Eddyville, New York. General manufacturing and dealing in tires and rubber goods.

Bergen & Zaager, Inc., October 29 (New York), $1,000. B. Bergen, 100 West 111th street; S. Zaager, 122 West 114th street, and H. Cogut, 23 West 119th street—all in New York City. Principal office, New York City. To manufacture tires, etc.

Blanton Rubber & Manufacturing Co., September 12 (Oklahoma), $10,000. J. R. Blanton, J. A. Mathews and M. W. Halmbacher—all of Oklahoma City, Oklahoma. To manufacture and sell automobile tire accessories and motor fan belts and other fabric articles.

Boston Belting Corp., October 13 (Massachusettes), $1,000,000. J. S. Stone, 84 State street; H. A. Dolbeare, W. F. Lawton—both of 214 Devonshire street; W. L. Van Kleeck, F. Chase—both of 511 Sears building—all in Boston, Massachusetts. Principal office, Boston, Massachusetts. To manufacture, purchase and sell belting, mill supplies and other fabrics and articles made in whole or in part of rubber, wool, linen, cotton, leather or other materials.

California Tire & Rubber Manufacturing Co., August 17 (California), $250,000. P. J. Maurer, Riveria; J. H. Grube, P. C. Tennis, J. W. Gunther and L. M. Tennis—all of Los Angeles—both in California. Principal office, Los Angeles, California. Deal in auto and pneumatic tires of all kinds, also auto accessories.

Clark Pedmobile Corp., November 9 (New York), $500,000. C. H. Clark, 501 West 113th street; R. J. Trimble, 52 William street, both in New York City, and J. E. Nix, Bush Terminal, Brooklyn, New York. Principal office, Brooklyn, New York. To manufacture hardware, tires, cycles, etc.

Detroit Carrier & Manufacturing Co., October 23 (Delaware), 10,000 shares without any nominal or par value. C. L. Rimlinger, M. M. Clancy—both of Wilmington, Delaware, and C. M. Egner, Elkton, Maryland. The office of the corporation within the State of Delaware is with the Corpora-

tion Trust Company of America, duPont building, Wilmington. To manufacture and deal in automobile supplies and accessories.

Fidelity Tire & Rubber Corp., November 2 (New Jersey), $5,000. R. Krause, Soundview avenue, Clason Point; J. L. Meltzer, 255 West 108th street, and F. V. Sheehan, 510 West 135th street—all of New York City. Principal office in the State of New Jersey, 15 Exchange place, Jersey City. To manufacture and deal in tires for automobiles, bicycles, etc.

Fort Wayne Tire & Rubber Manufacturing Co., November 20 (Delaware), $500,000. J. C. Brown, L. E. Kraft and H. J. Karr—all of Chicago, Illinois. To manufacture and sell automobile tires, tubes and rubber goods.

Hub Auto Tire Co., Inc., November 12 (New York), $10,000. H. Smolen, 1007 Simpson street; L. J. Levy, 822 Barretto street, and A. Krometes, 1 St. Lawrence avenue—all in Bronx, New York City. Principal office, New York City. To manufacture tires.

Improved Rubber Co., Inc., The, October 30 (Delaware), $100,000. A. A. de Bonneville, 88 West 35th street, Bayonne, New Jersey; E. M. Snell, 251 Fort Washington avenue, New York City, and A. S. Perry, Fairfield, Connecticut. To manufacture rubber products.

J. D. B. Rubber Co., October 26 (New Jersey), $50,000. A. G. Berg, B. A. Dare and J. H. Robertson—all of 300 Elm street, Arlington, New Jersey. Principal office within the State of New Jersey, 300 Elm street, Arlington. To manufacture rubber, rubber compounds and preparations, artificial or otherwise, and the tools, machinery and materials used in connection therewith; to buy, sell, manufacture, refine, prepare and deal in and with all kinds of chemicals, chemical compounds, rubber, rubber goods, artificial and otherwise, and the materials combined with or in any way used in the manufacture of rubber articles, accessories and adjuncts thereof, materials and apparatus used in connection therewith, etc.

L. H. Butcher Co., Inc., November 23, 1917 (New York), $25,000. Virgil G. Thomas, East Orange, New Jersey; E. J. Donegan, 2023 Caton avenue, Brooklyn, New York, and G. W. Durrenberger, 360 West Forty-fifth street, New York City. Principal office, 100 William street, New York. To manufacture and deal in colors, chemicals, minerals and industrial ores.

Liberty Rubber Products Co., October 23 (Delaware), $100,000. M. C. Mowery, I. S. Shubert—both of 226 Drexel building, and V. T. Cassin, 1202 S. Wilson street—both in Philadelphia, Pennsylvania. To buy, sell and otherwise acquire rubber and all its by-products.

New England Tire Fabric Co., November 1 (Massachusetts), $250,000. J. W. Hawes, F. A. Cross and W. P. Lombard—all of 18 Tremont street, Boston, Massachusetts. To manufacture and deal in knitted and woven fabrics of every material entering into webbing and cloths.

Oak Tire & Rubber Co., March 3 (Province of Ontario), $100,000. Directors, F. Law, J. H. L. Patterson, D. S. Murray and J. P. Ash. Administration office, 471 Yonge street, Toronto. To manufacture tires and tubes and the Oak Fibre Sole.

Para Tire Company of Council Bluffs, October 30 (Iowa), $30,000. L. J. Haughey, president; F. C. Wagner, vice-president, and C. B. Haughey, secretary and treasurer—all of Council Bluffs. To manufacture and repair automobile tires and tubes, and buy, sell and manufacture auto goods and accessories.

Patent Vulcanite Roofing Co., October 27 (Delaware), $5,000,000. C. L. Rimlinger, M. M. Clancy—both of Wilmington, Delaware, and C. M. Egner, Elkton, Maryland. To manufacture and deal in rubber materials.

Queen City Tire & Rubber Co., Inc., October 29 (New York), $1,000. S. Bernheim, 35 Nassau street, New York City; C. A. Weldon, 591 Seventh street, and H. H. Jacobson, 373 Grand street—both of Brooklyn, New York. Principal office, New York City. General manufacturing and dealing in tires and rubber goods.

Rochester Tire & Rubber Co., November 7 (Delaware), $500,000. E. H. Crowder, H. J. Crowder—both of Buffalo, and Dr. E. W. Ewell, Lancaster—both in New York. To deal in rubber goods of all kinds.

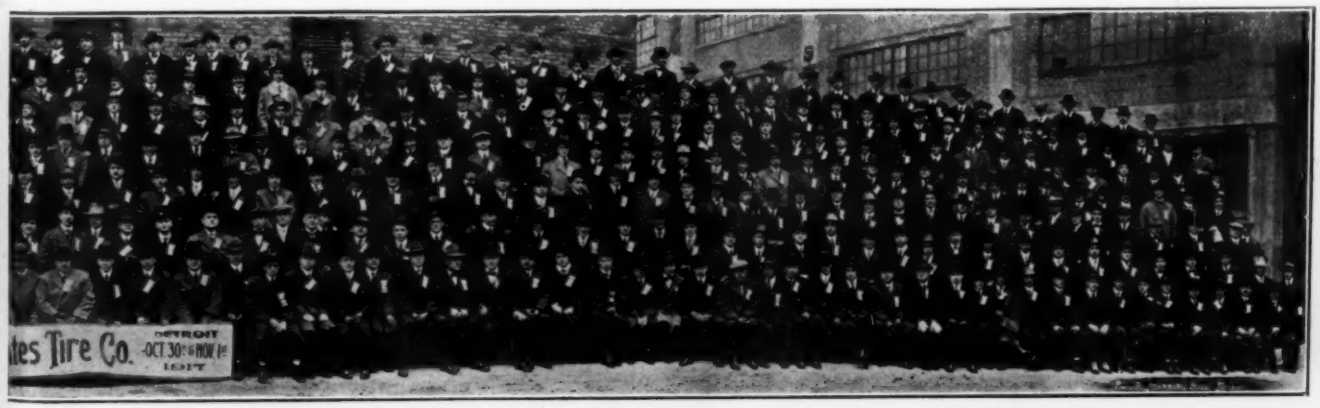
Rubber Insulated Metals Corp., October 23 (Delaware), $500,000. C. L. Rimlinger, M. M. Clancy—both of Wilmington, Delaware, and C. M. Egner, Elkton, Maryland. To attach india rubber and its compounds to any and all surfaces.

Sprague Tire & Rubber Co., The, October 18 (Nebraska), $1,500,000. E. H. Sprague, F. H. Gaines and E. G. McGilton—all of Omaha, Nebraska. To manufacture and sell tires and tubes for automobiles and other vehicles.

Spadone Machine Co., The, October 23 (New York), $20,000. H. Spadone, 126 Duane street; A. A. Spadone, 317 West End avenue, both in New York City, and W. W. Spadone, 53 Franklin avenue, Brooklyn, New York. Principal office, Manhattan. To manufacture machinery for cutting textile fabrics.

A NEW SCRAP RUBBER CONCERN.

The Apex Metal & Rubber Co., Philadelphia, Pennsylvania, has completed the equipment of its factory at 716-18 South Eleventh street. The building has a floor space of 16,000 square feet, and the company will engage in the handling of scrap rubber on an extensive scale. The members of the firm, which is a co-partnership, are: Jacob Strauss, formerly of the Queen Metal & Rubber Co.; Edward Roberts, senior member of Roberts Brothers, now dissolved; and L. N. Ornston, general manager, formerly with E. Bers & Co.—all the above being in Philadelphia.



THE RUBBER TRADE IN AKRON.

By Our Regular Correspondent.

THE support of the big rubber manufacturers of the United States to the government's plan of constructing air craft in overwhelming numbers was pledged Saturday, November 17, when 35 members of the Rubber Association of America were guests of Harvey S. Firestone, president of the Firestone Tire & Rubber Co., and first Western president of the association. A complete report of this notable gathering appears elsewhere in this issue.

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When the motormen and conductors of the Northern Ohio Traction & Light Co. went on a strike, Monday morning, November 11, officials of the Akron rubber companies immediately began making preparations for taking their 50,000 employes to and from work to prevent the operations of the plants from being halted. Every automobile truck owned by the companies was pressed into service and all others in the city that could be rented, borrowed or purchased.

That the officials succeeded in establishing a substitute transportation system is proven by the fact that at all times during the five days, when not a car moved on the Akron city lines, all departments in the companies had full complements of laborers.

The Goodyear Tire & Rubber Co., for example, had 43 trucks in readiness three hours after the strike was called. The trucks were stationed at all intersections of main streets and made rapid trips to and from the factory, taking as many as 50 men and women at a trip. Later in the week, routes were established to all parts of the town, and even to Barberton and Cuyahoga Falls, suburbs of Akron.

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A spirited rivalry between teams representing the Goodrich, Firestone, Goodyear and Miller rubber companies sprang up during a recent campaign in Akron to raise money for the Y. M. C. A. war work fund. After a close fight, the Goodyear teams took the lead, winning out over the Firestone teams with a margin of about $700. Goodyear teams obtained $22,899.68, Firestone teams $22,146.55, Goodrich teams $19,517.82, and the Miller teams $9,044.15. Akron's quota for the fund was $125,000, but the activity of the rubber companies' teams resulted in its being raised to $156,913.17.

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The Goodyear Tire & Rubber Co. won the city championship in another branch of sport, Sunday, November 18, when its football eleven defeated the White Rocks, 20 to 7, at Seiberling Park. The Goodyear baseball team last summer won the city amateur championship, and the company's athletes also landed at the top in the basketball league last winter.

The Goodyear Silents, a team composed of deaf and dumb employes of the company, completed a most successful season. Many of the strongest teams in the city were defeated by the Silents, their lack of the power of speech proving no handicap to them.

A military unit called the Flying Squadron has been formed by the company, consisting of six companies two of 80 men each from the factory offices, and four from the factory. Competent drill masters are provided by the company and military drill has become a regular duty with the members. Optional instruction is given to other employes who may desire to form other military units. This work is in no way connected with the Government service, being a local organization in which P. W. Litchfield, factory manager, is taking an active part.

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The Akron Equipment Co. will soon be installed in its recently erected plant, located on East Exchange. The general manager of this company, which makes rubber and rubber tire machinery, is Charles E. Quine, for many years connected with the Williams Foundry & Machine Co., of this city.

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The Amazon Rubber Co. has put out a red, white and blue tire. The car of Vice-President Marshall is equipped with a set of these tires.

* * *

The Adamson Machine Co. has recently commenced using its open hearth process.

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After traveling 2,576 miles through nine eastern states and the District of Columbia, the test car fleet of the Firestone Tire & Rubber Co. returned to Akron, November 23.

The fleet, which was composed of five automobiles heavily laden, left Akron October 18 to spread the doctrine of proper care for auto tires through the East and, incidentally, to test the tires under all manner of road conditions.

Seventeen of the 20 tires on the cars carried the same air in them when they returned to Akron as when they left. The seals on them had not been broken. The other three tires had been punctured, but immediately repaired.

The fleet was directed by Hugh A. Fargo. J. P. Fitzharris, tire expert, watched closely the condition of the tires.

THE GOODYEAR FLYING SQUADRON AND BAND, COMPOSED OF VOLUNTEERS FROM THE FACTORY.

A recent survey by the Akron Chamber of Commerce showed that there are now 24 rubber companies in Akron. Of the 24, 17 manufacture automobile tires and the remainder rubber sundries. About ten other companies have been incorporated, but have not started operations.

* * *

The capitalization of the Portage Rubber Co. has been increased from $3,000,000 to $10,000,000, according to a recent vote of the stockholders, to provide funds for enlarging the business. Only preferred stock is to be sold at present, the common stock being held in the treasury. The company paid a fee of $7,000 to the state for the increased capitalization.

* * *

Arthur H. Cummings, assistant advertising manager of The B. F. Goodrich Co. for the past five years, left the company November 24 to become advertising manager of the Timken Roller Bearing Co. Mr. Cummings is well known throughout the state, having started the advertising course at Reserve University with a series of lectures.

In order to give men of draft age employed by The B. F. Goodrich Co. an opportunity to learn the French language, Dr. Oscar W. Junek, head of the educational department, has started a class open to all employes. Over a thousand Goodrich men are now in various branches of the service and many more will be selected in the next draft.

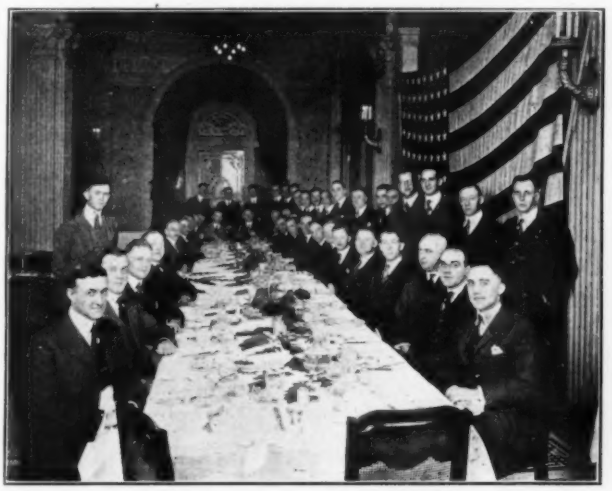
* * *

Gross sales of $1,200,000 and net profits of $181,504 were reported at the annual meeting of stockholders of the Mason Tire & Rubber Co. at Kent, November 19. Deductions for 1916 of profit and loss amounting to $23,328, income tax reserve of $5,076, preferred stock dividends paid in 1917 and preferred stock dividend reserve of $48,485 left a balance to be transferred to surplus account of $104,430. Stockholders voted to increase the par value of capital stock from $10 to $100 a share and elected the following directors: O. M. Mason, D. N. Mason, R. W. MacKinnon, M. B. Mason, John H. Diehl and D. M. Mason.

* * *

The salesmen of the Mason Tire & Rubber Co., Kent, Ohio, recently held a convention in that city when plans were worked out for increasing business during the coming year and the many problems that confront tire salesmen were discussed. One whole day was devoted to a trip through the factory, and every process in the manufacture of a pneumatic tire and tube was shown to the men.

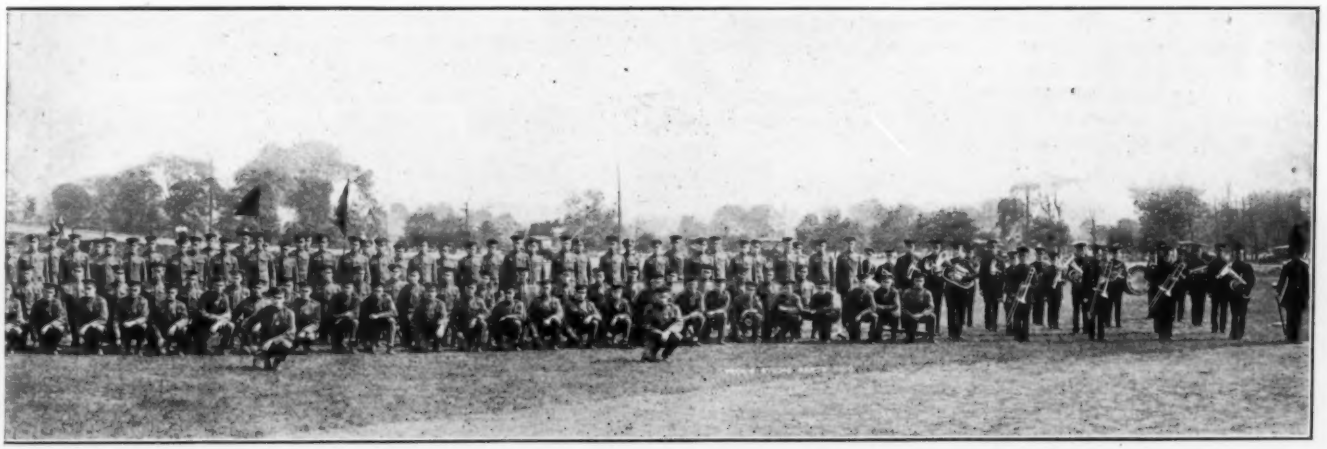
The banquet, which was held at the Portage Hotel, Akron, Ohio, was a very successful affair. John H. Diehl, sales manager, acted as toastmaster. The principal speaker was H. H. Kynett, of Philadelphia, Pennsylvania, who spoke on "The Relation of the Industry to Advertising." O. M. Mason, president of The Mason Tire & Rubber Co., spoke of the advantages gained under the new Federal Reserve Law in matters of Trade Acceptances, and expressed his opinion that it would not be long before even thirty-day business would be transacted on the basis of Trade Acceptances. D. M. Mason, general manager, spoke



THE MASON BANQUET.

on "The Present and Future Prospects of the Tire Industry." George C. VanVeen, manager of the Chicago branch, made an address on the "Relation of the Branch House to the Home Office."

Talks were also made on efficient methods of securing new business in branches by H. C. Smith, manager of the Kansas City branch; E. H. Sims, of Atlanta; Lee O. Miller, New York City Branch manager, and A. A. Fickel, manager of the Cleveland branch. R. W. MacKinnon, secretary of the Mason Tire & Rubber Co., spoke on "The Sound Financial Condition of the Mason Tire Co." D. J. T. Kennedy, advertising manager, spoke on the subject "Know Your Product." He emphasized the re-



THIS IS ONE OF THE UNITS ORGANIZED FOR MILITARY DRILL BY THE GOODYEAR TIRE & RUBBER CO.

lationship between advertising and sales and the close harmony which should prevail between salesmen and the advertising department.

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The Mason company announces that a cord tire, made with a special tread design consisting of an inverted "M," will be added to its line of tires early next year. The company is also preparing to manufacture fiber soles and heels, semi-cured tread bands for retreading, and a full line of accessories and repair materials.

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The city's new Boy Scout House, known as "Litchfield Lodge," was recently dedicated, the building being donated by P. W. Litchfield, vice-president of the Goodyear Tire & Rubber Co. The ceremonies were conducted under the direction of the National Boy Scout Headquarters, located at New York City.

THE RUBBER TRADE IN BOSTON.

By Our Regular Correspondent.

AT a meeting of the New England Shoe Wholesalers' Association, held in this city November 14, it was voted to cooperate with the Western Shoe Wholesalers' Association in recommending to members that they order as few varieties of rubber shoe samples as possible during the coming season, so that the manufacturers of rubber footwear may be able to produce more of the standard styles and pack them in regular case lots for immediate shipment. It was the sense of the meeting that better service could be obtained from the manufacturers if fewer styles were ordered and some of the more elaborate patterns eliminated.

There was considerable discussion regarding the date for the announcement of the new prices. As in the past, New England shoe wholesalers prefer to have the rubber year close January 31 or February 28, but jobbers in other sections are strongly opposed to waiting so late before knowing the prices for the next season, as they send out their salesmen as early as the middle of January. At the meeting, the jobbers were urged to use their influence to have the manufacturers defer their price announcements until February 1. It is hardly likely that their efforts in this direction will be effective, as the leading rubber footwear manufacturers have probably made all their plans to issue their new price lists the first of next month.

* * *

Meanwhile, the Massachusetts Retail Shoe Merchants' Association, at a meeting held the same week, in discussing rubber footwear deliveries, datings and prices, placed themselves on record as preferring February 1, rather than January 1, as the date for the manufacturers to make new prices. The members were somewhat inconsistent, however, when in the discussion they believed that their retail prices of today were too low, and that a mark-up of 33 per cent would be fair and proper in view of the increased cost of conducting business.

* * *

The Panther Rubber Co., whose plant at Stoughton, this state, was destroyed by fire six or eight weeks ago, is enlarging its Chelsea factory. It is also building a structure at Stoughton for reclaiming stock for its own use at the Chelsea plant. The building now being erected is a temporary structure and will be replaced in the spring by a modern factory.

* * *

The Canton Leather & Rubber Co., recently incorporated with a capital stock of $500,000, has acquired the Morse mill property at Canton, Massachusetts, formerly devoted to the manufacture of a celebrated stove polish, and expects to have the plant in operation early in February. The company will manufacture artificial leather as well as specialties for the shoe and leather trade, and later on rubber-soled tennis and outing shoes. The president of the company is Guy A. Ham, a prominent Massachusetts lawyer and banker. W. T. Bonner, who will be general manager of the company, was for five years connected with the Plymouth Rubber Co., of Canton, Massachusetts, and previously with the Thermoid Rubber Co. and the Empire Tire & Rubber Co., both of Trenton, New Jersey. He is well known in the trade, having taken out many chemical and mechanical patents in connection with the rubber and automobile industries, among which were several connected with the development and production of asbestos brake lining for automobiles.

* * *

It is reported that the Lynn Rubber Goods Manufacturing Co., Lynn, Massachusetts, has purchased a large tract of land at Bristol, Rhode Island, and will erect there a well equipped plant for the manufacture of rubber heels, soles and arch supporters, as well as other specialties for the shoe trade.

* * *

A fine example of a modern manufacturing building is one recently erected at the plant of the Boston Woven Hose & Rubber Co., at Cambridge, one of several notable new structures added to that plant. It is in marked contrast with some of the older buildings, which in their day were considered excellent for their special purposes Made entirely of steel, concrete and glass, this building is practically a monolith and

BOSTON WOVEN HOSE & RUBBER CO.'S ADDITION.

virtually non-combustible. Owing to the number and size of the windows a flood of daylight is provided, thus insuring good workmanship, while the permanence of the structure is a measure of economy in building which could be attained only by concrete and steel construction.

* * *

The social and athletic association of the Fisk Rubber Co., Chicopee Falls, this state, publishes and supports a breezy weekly paper, having a circulation of 6,000 copies among the employees of that company. It is really a family affair, devoted almost entirely to the sports and games of the athletic club, the doings of the workers in the various departments and contributions of the workers themselves. It is bright, original and heads its editorial column with an editor, associate editor, 15 department editors and 66 reporters. J. E. Martin, who has just assumed the position of editor, is a well-seasoned newspaper man, formerly having had charge of the sporting pages of the "Springfield Republican." He will doubtless add new brightness to this already sprightly "company" paper.

The Fisk Social and Athletic Association of the Fisk Rubber Co., held a grand ball in the Auditorium at Springfield on the

evening of November 9, 1,000 couples being present. A concert by the Hartford Tempo Quartet preceded the dancing, and music for the evening was furnished by Slavin's Singing Orchestra of Boston. Each number on the dance program was dedicated to some particular activity of the association, such as "The Red Tops Baseball Team," "The Basketball Team," etc.

* * *

James M. Patterson has resigned as vice-president and superintendent of the Needham Tire Co., Charles River, Massachusetts, and H. D. Ferguson is now superintendent. The present officers of the company are Charles Langmaid, president, and W. Louis Williams, treasurer, the latter's office being in the Sears building, Court and Washington streets, Boston.

* * *

Following the death of Mrs. R. D. Evans, mentioned in THE INDIA RUBBER WORLD last month, a petition was filed in behalf of 112 possible heirs of Mr. Evans, that administrators be appointed to administrate that portion of the estate not already administrated by Mrs. Maria A. Evans, who has just died. This petition asks that George L. Huntress, Rene G. Paine and Stanley M. Bolster be appointed for this purpose, and Judge Dow has so appointed them. Mr. Paine is the nephew of the late R. D. Evans and also nephew of the late Eben H. Paine, for so many years the close business and social companion of Mr. Evans, both in the American Rubber Co. and the United States Rubber Co. Mr. Evans' will provided that on the death of his wife one-half the residue of his estate should go to the heirs-at-law, hence this petition.

THE RUBBER TRADE IN RHODE ISLAND.

By Our Regular Correspondent.

NOTWITHSTANDING that every facility is being and for many months has been utilized to its fullest extent, every manufacturer of rubber goods in this State is finding it impossible to keep pace with the numerous and increasing demands that are being made upon him. These demands include, in addition to largely increased regular work, immense quantities of work for the government for use in connection with the "Great World War." This activity is especially noticeable at several of the plants because of the additions that are being erected.

* * *

The first month of the advanced schedule of wages for the employes of the National India Rubber Co., at Bristol, finds the 3,400 hands now earning a permanent bonus of 10 per cent, as well as an additional raise for piece workers, principally among the tennis shoe makers, which has increased the weekly payroll several thousand dollars. The factory is on full time, and in every department orders are being received faster than they can be filled and shipped. One day, the early part of the past month, the company shipped 8,000 cases of rubber shoes to Baltimore for army use.

The company is at present erecting an addition to its shoe department buildings that will materially enlarge the capacity of the plant. A new three-story brick building, 260 feet in length and 60 feet in width, situated at the east end of the enclosure near the wire works, is already under construction. The foundations are already in and the frame work is well under way.

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The Lynn Rubber Manufacturing Co., manufacturer of rubber heels, arch supporters and other rubber shoe accessories, has taken the preliminary steps to locate at Warren. A tract of land has been purchased at the foot of Cutter street and Railroad avenue, near the railroad station. At a recent meeting of the Warren town council a petition was received from this corporation asking for exemption from taxes for ten years. The petition was granted. It is stated that the company has purchased two acres of land in the town for the purpose of erecting a two-story brick factory with 15,000 square feet of floor space. The company, which is capitalized at $50,000, wishes to move from Lynn owing to the congested conditions there, it was stated.

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The Narragansett Rubber Co. at Bristol is operating on full time with a large booking of orders for future delivery. Although no advance has been made in wages at this plant, the bonus that was given to the operatives a year ago is still in vogue so that the wage schedule is considerably above the normal. Extensive interior rearrangement has recently been made in the plant, which has given a considerable increase in the manufacturing facilities, and a number of other changes are under contemplation.

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The International Rubber Works, owned by the O'Bannon Corporation at West Barrington, is being operated on a night as well as a day schedule, owing to the pressure for carriage cloth material, which is being used to a great extent in automobile work. George W. Evans, for many years head of the office force of the O'Bannon Corporation, has severed his connection with the firm. Dr. S. T. Sommenstuhl, chemist with the company for the past two years, has also resigned.

* * *

E. I. Cooper, for several months overseer of the packing room and other departments at the factory of the National India Rubber Co., at Bristol, has resigned, as he has enlisted in the Aviation Section of the Signal Corps of the United States Army for the duration of the war. Ralph W. Holt, who has been assistant in supervising portions of the factory, has succeeded Mr. Cooper.

* * *

Edward J. Smith, who left early in the past month for his new post as manager of the Goodyear Tire & Rubber Co.'s branch at Hartford, and Frank J. Murray, who went from the position of manager of the local branch of the Post & Lester Co. to that of manager of the Boston branch, were given a send-off by about thirty of their friends previous to their departure. Mr. Smith came here as head of the local Goodyear branch two years ago and made such a fine record that he was promoted to a larger field.

THE RUBBER TRADE IN TRENTON.

By a Special Correspondent.

THE rubber industry in Trenton is booming. Those companies that are working on government orders are operating to their capacity, and six firms, principally tire manufacturers, are now having erected or contemplate the building of additions to their plants. The rubber manufacturers in Trenton confidently believe that 1917 will be one of the most prosperous in their history.

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The Empire Tire and Rubber Co. is now expending $220,000 to double the output of its automobile tire and mechanical plant. The company recently contracted for the construction of a one-story, brick, frame and steel structure, to cost about $40,000. Approximately $180,000 will be used for new machinery and improvements. Work on the building will commence immediately and is expected to be finished during the month of January.

The Empire company during 1917 experienced a 100 per cent increase in business, and the plan is to double this after the new year. One thousand additional workmen will be employed. The product of the plant is now 3,500 tires and 5,000 tubes a day. At a recent meeting of the board of directors, the resignation of A. Boyd Cornell, secretary of the firm, was accepted and his

office has not yet been filled. The other officers are James E. Baum, president; Edward B. McKay, first vice-president; C. Edward Murray, Jr., second vice-president; J. Cornell Murray, treasurer.

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The Essex Rubber Co. is to erect a two-story building, to cost $30,000. The first floor will be used as a mill room and the second for storage purposes.

* * *

The Globe Rubber Tire Manufacturing Co. will erect a new two-story building in the spring at an estimated cost of $20,000. The building will be used as an office and for the shipping department.

* * *

The Luzerne Rubber Co. has contracted for the erection of a one-story brick and steel power plant, and two new boilers will be installed, at a total cost of $20,000.

* * *

John A. Lambert, treasurer and general manager of the Acme Rubber Manufacturing Co., announces that he expects a decrease in the production of the automobile tires, due to the wartime economy which consumers are now practicing. However, an increase in the production of other articles, particularly hose and packing used by the Navy Department, is anticipated.

* * *

Negotiations have been closed by real estate agents acting for the Spottswood Rubber Manufacturing Co., now located at Spottswood, New Jersey, for a lease with option to purchase a plant formerly owned by a brick manufacturing company on New York avenue, Trenton, including a factory building, 50 by 200 feet, and a lot, 100 by 300 feet. After many alterations, which will require several months, the Spottswood plant will be abandoned.

* * *

The Rubber Insulated Metals Corporation of New Jersey, with offices at 902 North avenue, Plainfield, New Jersey, has filed a certificate of dissolution with the Secretary of State.

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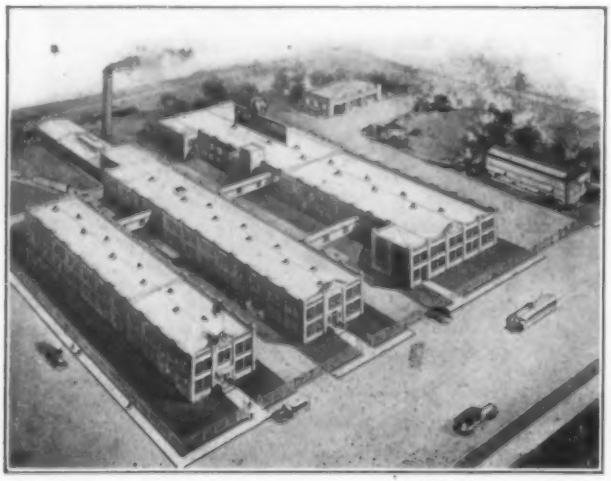
Additions estimated to cost $100,000 are now being made to the plant of the Delion Tire & Rubber Co., and with the coming of the new year the daily output will be 1,000 automobile tires. Three modern fireproof buildings, shown in the accompanying



DELION TIRE & RUBBER CO.

illustration, are nearly completed and another will be finished in the spring, costing $75,000. The entire plant will occupy five acres and will be one of the largest in this section.

One of the buildings, now completed, is 120 by 50 feet, two stories high, and will be utilized for the manufacture of tubes and for the shipping and storage departments. In front of this has been erected a modern office building. An addition, 40 by 30 feet and two stories high, has been made to the engine room, which provides a dry room on the second floor; and still another addition, 30 by 30 feet, has been made to the main building. Both floors will be used for locker, wash and rest rooms for the employes.

Contractors are also completing a glass and steel building, 80 by 30 feet, which will be used for mixing rubber cement and coating fabrics.

The officers of the company are H. H. Coleman, president; Peter D. Thropp, vice-president; Owen J. McCarthy, secretary, and George H. Graham, treasurer.

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Extensive building operations are being planned by the Zee-Zee Rubber Manufacturing Co., at Yardville, six miles from Trenton, and it is estimated that $500,000 will be expended for new brick and concrete buildings, additional machinery and equipment. Work has already commenced on one of the first of the new buildings, an inner tube factory, 50 by 160 feet, with a capacity of 4,320 tubes daily, and which, according to estimates, will cost $350,000. It is the purpose to rush the completion of this building and to erect the additional structures early in the spring.

Another building two stories in height, 125 by 40 feet, is to be built in front of the present plant. In front of this a modern office building, 40 by 60 feet, will be constructed. The Zee-Zee company is also arranging for still other structures when those mentioned have been finished. The proposed new mill room building is to be a one-story structure, 50 by 200 feet, and another building will be 50 by 200 feet. The company intends to have a daily output of 900 automobile tires and 5,000 inner tubes.

* * *

The Para Rubber Co. has established a distributing agency on East Hanover street, Trenton, and has contracted with the Globe Rubber Tire Mfg. Co. for the distribution of its products in the central part of New Jersey.

* * *

An involuntary petition in bankruptcy has been filed in the United States District Court in Trenton, New Jersey, against William Piness and Julius Endler, individually, and trading as the North Jersey Co., 39 Lexington avenue, Passaic. J. Vincent Barnett, of Paterson, has been appointed receiver. A hearing will be held before Referee Frank Van Cleve at Paterson.

RAYBESTOS BRAKE LINING FOR FORD CARS.

It is generally supposed that supplies and accessories for Ford cars must necessarily be cheap in order to acquire a ready sale. This theory, however, is disputed by the makers, who state that the demand for Raybestos brake lining for small cars, is increasing. This special lining is made up without wire insert, to preclude the possibility of small particles of wire short circuiting the magneto. It is composed of long fiber asbestos, spun and woven into a fabric, which in turn is treated with heat and wear-resisting compounds. It is put up in boxes, one set to a box, each set comprising three pieces that are each 23 inches long. Sufficient rivets for attaching the lining are included in the box. [The Raybestos Co., Bridgeport, Connecticut.]

The Polyglot Rubber Trade Directory contains valuable information that has been compiled expressly for the rubber trade.

The Rubber Trade in Great Britain.

By Our Regular Correspondent.

NOW that America has entered the war and is acting with characteristic energy and thoroughness, the conditions under which the rubber trade is being carried on in Britain appear to be paralleled in the States and therefore remarks from this side which might have been read with interest a year or two ago may now hardly merit the attention of busy men. This does not apply with equal force to the rubber war news from America, which the British subscribers to THE INDIA RUBBER WORLD have the opportunity of reading, because this is the first occasion on which our manufacturers have had the opportunity of comparing notes with other belligerents and of recognizing that they are not alone in their perplexities and worries. Time passes quickly and it hardly seems that more than three years have passed since the editor, when lunching in an important rubber manufacturing center in the north of England, announced that his attitude towards the belligerents was one of absolute neutrality and impartiality. During the whole of that period our rubber trade, with certain not very important exceptions, has been extremely busy, the main change which has come over the scene being that the profiteering which characterized the first six months has now largely decreased, owing to the excess profits tax and to the close control now exercised by government officials over war contracts. The American works, I gather, are not profiteering, but they are undoubtedly profiting by the experiences of other countries. With regard to the labor question, which, in the case of conscription, is bound to be an acute one, it would seem that more difficulty is to be apprehended in American works regarding the substitution of women for men in heavy work than has been the case here.

WOMEN IN THE MILLING ROOM.

A recent statement in THE INDIA RUBBER WORLD that women are to be found in foreign rubber factories in almost all departments, except the milling room, is not quite accurate at the present time, as the milling room must now, within the writer's knowledge, be included among the departments successfully invaded by women workers. Such labor is attended with certain precaution and is always superintended by a competent man. It may be taken, however, that whatever may be the case in other departments the grinder and the mixer will not afford employment for women after the war.

THE CRUDE AND RECLAIMED RUBBER SITUATION.

The crude rubber situation continues satisfactory, a common remark in the trade being that there is plenty of rubber, and although manufacturers with large contracts on hand have naturally covered their requirements in advance, there has been no panic buying in fear of abnormal prices. Firms have covered their estimated requirements for nine months ahead at prices from 2*s.* 1*d.* to 2*s.* 8*d.* per pound, and have reason to congratulate themselves that they have not, as have some of their competitors, to take rubber at 3*s.* 3*d.* per pound, some quantity bought at this price having yet to be delivered. A good deal, of course, depends on the shipping question as regards delivery, as it may easily turn out that the cargo space available during the past month may be more restricted in the near future.

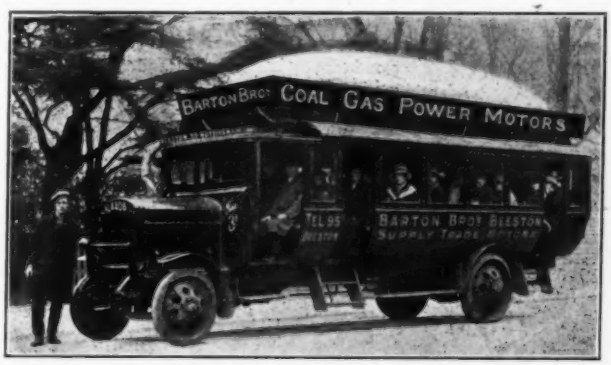
In many directions there has been a saving in the raw material, the erstwhile insistence of the use of a large quantity of the best rubber for goods which are only intended to have a short life being now largely replaced by a demand for rubber of a sufficiently good quality for the purpose intended to be served. This means, of course, the effecting of considerable economy without any perceptible sacrifice of efficiency. Although America is not a large producer of raw rubber, it is common knowledge that she is largely interested in the production of reclaimed rubber, and speculation is ripe on this side as to whether the proved utility of the superior brands of reclaimed rubber is to assert its claims to recognition at the hands of those responsible for drafting American government specifications. In this respect European reclaimers have long complained that their government advisers have not kept abreast of the times.

GOVERNMENT PRIORITY HOLDING UP PRIVATE ORDERS.

With the plethora of government orders, both home and allied, it is not surprising that the home trade is being held up, to say nothing of large orders from Australia. Especially is this the case with the garment trade, the bulk of the wholesale warehouses being anxious to replenish their depleted stocks. Orders given out six months ago are still unexecuted on account of the priority of government work. Orders from private sources, however, continue to pour in, though the time of their fulfillment is highly problematical.

COAL GAS AS MOTIVE POWER.

The use of coal gas as an automobile fuel, mentioned in the previous issue of THE INDIA RUBBER WORLD, will probably not perish at the coming of peace. This is mainly because of its proved economy, as it has been shown that 250 cubic feet of gas costing 10*d* do the work of one gallon of petrol at 4*s.* At



COAL GAS POWER APPLIED TO A LONDON BUS.

present the use of gas is limited to vehicles going a short distance, as the gas bag has only 25 miles capacity without recharging. Of course, the districts where the gas-driven car will be prominent will be where gas for refilling the bags can be easily obtained. Arrangements are rapidly being made by corporations and gas companies for the filling of motorists' gas bags at a charge of 3 pence or 4 pence per 100 cubic feet. The bags are not in any sense a danger either to passengers in the car or to the public in the roads, as they are charged at a pressure which is only 3-10 inch above atmospheric pressure, and in the event of a sudden puncture would escape but slowly into the atmosphere. It is recognized that, although gas has come to stay, the gas bag or container will in all probability have only a limited life. It may be some time before the invention of a satisfactory gas cylinder weighing about 60 pounds and containing sufficient compressed gas for an 80-mile run, but this is what is looked upon as desirable and the feasibility of which is being discussed. Meanwhile the proofing departments of our rubber works are busily engaged in proofing light duck for several firms who are specializing in the manufacture of gas bags. The first rubber coal gas holder used in the world on a motor vehicle

was patented and made by Barton Brothers, Buxton, Notts, and it is claimed that this is now in good condition after sixteen months' use in all weathers. Eighteen months has been stated as the period for which a good quality gas bag should maintain its efficiency. No doubt very varying results will be registered by individual users of gas bags, owing to the speed at which they are being rushed out, and from the fact that in many quarters any sort of proofing on almost any sort of fabric from double warp wigan to fine cambric is being eagerly bought by those who wish to be prepared against the abolition of pleasure motoring on November 1. The trade is by no means unsympathetic, because the demand is such that high prices are readily obtainable, yielding profits much in excess of those resulting from government work. Furthermore, there are no troublesome specifications to adhere to, nor are any guarantees being given. Opposition has already arisen, as the Wood-Milne, Limited, has patented a light type of gas container, fourteen inches in diameter, strong enough to stand a pressure of 1,800 pounds per square inch and containing 500 cubic feet of gas at 800 pounds pressure, equal to two gallons of petrol.

DEVULCANIZATION OF RUBBER.

So many claims have been loosely made in reclaiming patents as to the devulcanization of the waste rubber, and with so little ground for the assertion, that scepticism is naturally rampant. When I read that Dr. D. Spence had entered the field and had patented a process, however, I among many others naturally read carefully what he had to say. In a general way one must agree with what he and Alexander state with regard to past claims for devulcanization, but I do not quite agree that, except with respect to plasticity, reclaiming processes leave the rubber practically unchanged. No doubt most of them do, but there are exceptions, and I have seen reclaimed rubber the genuineness of which was beyond doubt, where the tendency to form a solution in naphtha was much more pronounced than in the case of the untreated crumb rubber. I do not say that this amounts to much, but still some progress has to be recorded. Even had I the ability, and shall I add—the temerity, to discuss in detail Dr. Spence's patent, the available space would not suffice and I shall only touch briefly on one or two points. The reactions involved are certainly on novel lines, using an accelerator of vulcanization to remove combined sulphur. Briefly, the rubber to be devulcanized is dissolved in a solution of metallic potassium in aniline in a closed vessel at 175 degrees C., the rubber freed from mineral matter being obtained by precipitation or other suitable means. The experiments made by Dr. Spence show a very large amount of the combined sulphur removed, and he has been decidedly successful with vulcanite. An important point is as to how far the process, as at present developed, can be worked on the manufacturing scale. Metallic potassium before the war was a laboratory luxury, which must by now be at a very high price. Metallic sodium is also referred to by Dr. Spence as suitable for use, and this is now a commercial product, being made on a large scale by one or two chemical concerns in England. Aniline is not cheap, but no doubt its price will fall and, moreover, it is recovered in the process. A feature of the present alkali processes is that the fibrous matter in the rubber waste is destroyed and removed. I take it that this would not be the case in the sodium-aniline solution in the absence of water, though I have no knowledge on the point. It will be interesting to see how Dr. Spence's precipitated rubber compares as regards life with raw rubber, the records of other precipitated and extracted rubbers being by no means satisfactory. However, Dr. Spence's patent embodies research and results of great scientific interest.

SPANISH FIRM CHANGES ADDRESS.

Due to increased business, Messrs. Blasi, Sague & Pallás, Barcelona, manufacturers of rubber and asbestos goods, have moved to 4 Paseo Jan Juan, in that city.

BRITISH TRADE NOTES.

LATEST reports from English industrial centers are practically unanimous in declaring general prosperity, brisk trade and high wages, considering the conditions inevitably following in the wake of war.

Government demands and the necessity of the times have wrought a good many changes, displacing industries in one town and introducing new ones elsewhere. Thus, Birmingham no longer manufactures a great many of the small rubber articles which were among the local specialties. On the other hand, Bradford is doing a flourishing business in paramattas with fine Botany weft for rubber proofing, this material being used for trench capes. The ordinary gabardine trade has also prospered here, these goods being mostly cravenette proofed for men's and women's wear.

As may be expected, the continual withdrawal of labor for the front creates a shortage of hands that makes it hard for manufacturers to maintain their trade at home and abroad. Nottingham, for example, which has an elastic web industry of considerable importance, employing a large number of people, managed only with the greatest efforts to satisfy local and foreign demands. So far the production has not fallen much below pre-war levels, but it is expected that continued scarcity of labor will result in a decrease after 1917.

Birmingham, too, was able to supply all ordinary requirements besides government demands for rubber tires. In fact, the export of rubber goods to the United States in 1916 amounted to $80,906 against $11,755 the year before, showing an increase of $69,151. But Leicester's shipments of elastic web to this country totaled $26,126 in 1916, compared with $31,969 in 1915. Figures for elastic braid and cord during 1916 were $6,251 and $5,361, respectively. Bradford also sent a small amount of rubber goods to America, the value being $2,053. In this town there is a real market for American fountain pens, and rubber gloves from the United States find a ready sale at Leeds.

CUSTOMS REGULATIONS AND MODIFICATIONS.

NEW ZEALAND.

BALATA belting is classified as belting, other than leather belting, for driving machinery, and there is a 10 per cent preferential surtax on foreign goods.

SWITZERLAND.

By an Order-of-Council, dated August 10, 1917, the exportation of dental rubber and insulating materials from Great Britain to Switzerland has been prohibited.

CEYLON.

The Customs Amendment Ordinance No. 10 of 1917, dated June 8, 1917, which amends the Customs Ordinance No. 17 of 1869, provides a Table of Exemptions from import duties. The following articles may enter duty free:

(1) Machinery for the preparation, manufacture and packing of crude rubber.

(2) Crude rubber.

(3) Any material or combination of materials used for making boxes for rubber.

BRITISH HONDURAS.

The Chicle (Export Duty) Ordinance, 1917 (No. 6 of 1917), provides that from June 20, 1917, the export duty on chicle shall be increased from ½ cent per pound to 1½ cents per pound.

SWEDEN.

From August 1, 1917, the exportation of the following articles is prohibited: Textile materials in combination with rubber; textile goods waterproofed, coated or impregnated with material other than rubber; tissues fastened together by means of materials other than rubber.

UNION OF SOUTH AFRICA.

By a government notice (No. 859) appearing in the "Union of South Africa Government Gazette" of July 6, 1917, the rates of duty on the following articles have been fixed at:

	Rates of General Tariff.	Rates of Import Duty. Produce of Britain or of Reciprocating British Possessions.	Rates of Import Duty. Produce of Non-reciprocating British Possessions.
Abdominal belts or supports	20% ad val.	9% ad val.	9% ad val.
Lambs' teats, rubber	3% ad val.	.....	.....
Waterproof paper, lined or unlined	3%	.....	.....
Breathing apparatus	Free	.....	.....

VENEZUELA.

The following articles are to pay duty as shown herewith:

	Total Import Duty (Including Surtaxes) Bolivares, Per Kilog. (Gross).
Inner tubes for automobile tires	1.174
Rubber sheets or rubber plasters for repairing automobile tires and inner tubes	1.174
Cotton cloth covered with rubber for repairing automobile tires	1.174

PERU.

Since July 1, 1917, the export duty on rubber from the Putumayo region has been collected according to the provisions of the decree of July 1, 1914, less a reduction of 50 per cent. The custom house at Iquitos requires that rubber from this region shall be delivered in sealed shipments, so that fraud may be prevented and the fiscal revenue protected.

MEXICO.

By a presidential decree of September 22, 1917, green guayule and other rubber-producing plants carry an export tax of 6 per cent ad valorem, on the rubber contents, while the ad valorem tax on guayule gum is 4 per cent. The Treasury Department will fix official valuation at intervals of 1 to 3 months.

FOREIGN TRADE REPORTS.

BERMUDA.

DURING 1916 Bermuda imported rubber goods to a total value of $6,784, of which the United States furnished the greater part, amounting to $4,171. Imports from the United Kingdom and Canada totaled $623 and $1,990, respectively.

AUSTRALIA.

Australia's imports of rubber goods from the United States during the three months ended March 31, 1917, were £85,916 and showed a decrease of £44,329 over the amount for the corresponding period in 1916. Imports from the United Kingdom were second in importance and valued at £50,848. Japan supplied goods to the amount of £3,234, while £36,261 worth came from the British possessions.

NORWAY.

The very large demand for rubber footwear cannot be satisfied, owing to the difficulty of obtaining supplies. Prices have almost doubled since 1914, when women's rubber shoes cost $0.95 and men's $1.40 per pair. The present prices, per pair, are $1.60 and $2.40, respectively.

BRITISH GUIANA.

Business during the year 1916 was unusually brisk and increases in many import and export items are reported. Imports of rubber and gutta-percha manufactures represented a value of $12,229 in 1916, as against $11,418 in 1915. The total value of balata exports during 1916 was $848,541, as compared with $784,089 the preceding year. The amount shipped to the United States in 1916 totaled $250,462, or $144,450 more than the year before.

DUTCH GUIANA.

Exports of balata from Paramaribo to the United States increased very materially during 1916, when the amount was $299,027. The 1915 figures were $191,044.

PHILIPPINE ISLANDS.

In spite of war conditions, trade during the first six months of 1917 was generally satisfactory, although some items show decrease as the following figures indicate:

IMPORTS.

	January-June, 1916. Pounds.	January-June, 1916. Value.	January-June, 1917. Pounds.	January-June, 1917. Value.
Automobiles, parts and tires	.....	$663,329	.....	$653,305
Rubber goods	.....	180,992	.....	119,918

EXPORTS.

Gutta percha	41,334	$8,142	18,517	$3,154
Rubber, crude	11,211	6,462	24,202	13,468

It will be noticed that gutta percha exports have decreased more than half, while rubber figures have more than doubled.

FRENCH WEST AFRICA.

SENEGAL.

Government demands have given an impetus to the rubber industry in this district, consequently exports show an increase. The figures for 1916 were 162,768 pounds, value $63,119, and for 1915, 107,073 pounds, value $28,836. The quantity exported in 1913 was 91,662 pounds.

FRENCH GUINEA.

Higher prices and increased demands from France are once more responsible for prosperity. Although shipments of rubber in 1915 fell off considerably—the quantity being 916,266 pounds against 1,847,289 pounds in 1913—1916 totals reached 2,846,480 pounds, value $1,123,740.

IVORY COAST.

Increased activity was noted here, too, although the output was far below that of 1913. The quantity and value for 1916 were 742,950 pounds and $205,169. This is an improvement as compared with $182,174 in 1915, but disappointing when it is remembered that in 1913 the total rubber exports were valued at $992,332.

CONTROLLING BARK CONSUMPTION.

J. R. Harmsen describes a simple and effective method for controlling the bark consumption in *Hevea* tapping.

Each tree has four tapping surfaces, so that a quarter of the whole surface is tapped per year. On such a section a spout is placed two inches above the ground and then two cuts to the left are made, with a distance of 15 inches between each, allowing 1¼ inches of bark per month per cut. Each of the 15-inch sections may have twelve lines scratched on them in the desired direction.

The trees are then controlled as follows:

The whole area in bearing is divided into blocks of about nine hectares (hectare=2.47 acres) and end trees in each block are marked with a different number. Thus trees in the first block receive the number 1, trees in the next number 2, and so on through 30 numbers, when a new series of 30 is begun.

On the first of the month all trees numbered 1 are thinly marked with tar on the tapping cut; on the second the next block is thus marked, and so forth.

In this way not only is confusion of dates avoided, but too rapid tapping is soon discovered and bark consumption can more easily be regulated.

RUBBER IN FIJI.

Comparative statistics of rubber exports from Fiji indicate the fitness of the land for the cultivation of Para rubber, and this industry may now be regarded as thoroughly established there. The rapidity with which rubber planting has progressed is shown by the export figures, which rose from a value of £463 in 1914 to £3,464 in 1915 and £8,834 in 1916. The quantities for the last two years were 12¾ tons and 26½ tons, respectively.

THE SITUATION IN THE DUTCH EAST INDIES.

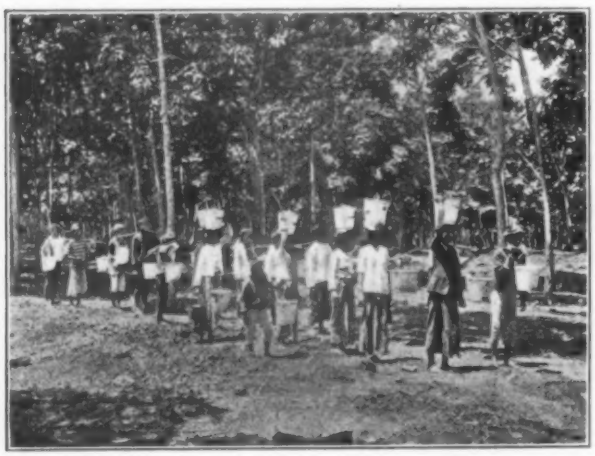
By a Special Correspondent.

GREAT indignation has been aroused among local merchants in connection with the requisitioning of the vessels "Djember" and "Ophir" by the Netherlands Government. This has taken place despite the fact that shipping space is already painfully restricted, and notwithstanding the fact that a petition from the entire Dutch East Indies was cabled to The Hague, urging that shipping space to these parts should not be further withdrawn, while the boats of the Dutch East Indian Lines lie idly in Netherlands' docks. Business men regard the future very pessimistically, as they realize especially that the very existence of the natives is threatened, should exports cease.

The accumulation of stock is assuming appalling proportions, there being 2½ million tons of sugar, 1½ million piculs of coffee, 40 million kilos of tea, 900,000 bales of tobacco and 2 million tons of rubber, copra and oil awaiting shipment. For these enormous quantities only 275,000 tons of shipping are available, as against 374,000 tons in 1916 and 575,000 in 1915. Two limited companies have lately been formed to exploit two sailing vessels, the *Nest* and the *John Davie*, which will carry rubber and tobacco to the Netherlands. Each of these companies has a capital of fl. 500,000 ($200,000) and their shares have already been sold at 110.

AN EXPERIMENT STATION FOR THE A. V. R. O. S.

The A. V. R. O. S. (East Coast of Sumatra Rubber Planters' Association) is to have an experiment station at Medan. According to the plans of the architect, it will be an imposing structure consisting of a main building and two wings. The length of the main building is to be about 80 feet and the greatest breadth, 75 feet. Here will be located the offices for director and employes, a library, a museum, a drafting and a preparation room and a shipping department. One of the side-buildings



TRANSPORTATION OF LATEX TO THE FACTORY.

will contain zoological, chemical and testing laboratories, a compounding and vulcanizing room; the other wing, the office of the botanist, rooms for microscopic examinations, botanical and testing laboratories, and one or two other departments.

THE PASSING OF ELABORATE TAPPING KNIVES.

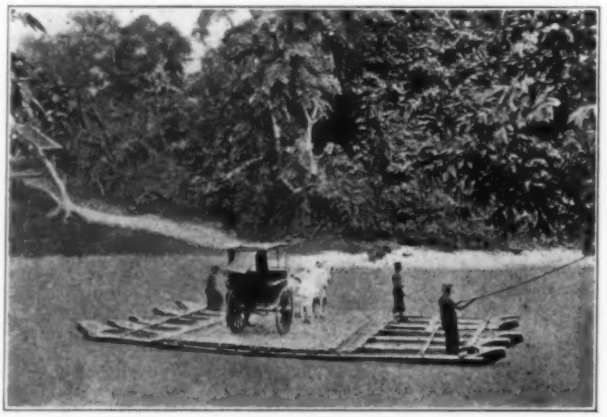
One of Java's pioneer rubber planters, when recently asked his opinion of a newly invented tapping knife, declared that now the tappers know their business and there are good methods for controlling the amount of bark removed, the time for inventors of tapping knives has passed.

BAD PACKING OF RUBBER.

Exporters in Java still continue to complain occasionally of the condition in which rubber is forwarded to them by certain planters. When the product is wrapped in Chinese paper, the paper sticks to the rubber and is removed with great difficulty. As a consequence, it must be offered at considerably below the market price.

INVESTIGATION OF THE PHYSIOLOGY OF LATEX.

Some months ago a committee consisting of J. G. H. de Voogt, president of the board of directors of the Central Rubber Station; A. R. F. van der Mark, secretary of this board, and Dr. O. de Vries, director of the Central Rubber Station, was formed to collect the funds necessary for carrying out a scientific investigation of the physiology of latex. This committee recently circulated a communication stating that it had been entirely successful and that in addition to fl. 2,000 ($800) in cash contributions, the sum of more than fl. 18,000 ($7,200) would be available each year for five years.



A JAVANESE FERRY.

A new committee is to be formed which will take charge of the funds. The Director of Agriculture, Industries and Commerce has already promised to be a member, and several men, prominent in the various branches of rubber industry and chemistry, have been invited to join.

The services of Dr. W. Bobilioff, a Swiss of Russian extraction, have been secured for the work of investigation. He will leave for Java as soon as the opportunity to do so arrives.

THE A. N. I. T. A.

The directors of the Netherlands East Indian Exhibition—Anita—have resolved that the date of exhibition, May 1, 1919, will not be postponed until three years after peace has been declared, as was requested by the Netherlands. Apart from the fact that the interest in the exhibition would die out if it were to be postponed for so long a period, preparations for it have been under way for some time. The construction of the Grand Boulevard across the grounds has been commenced, and planting on the vast area is progressing satisfactorily.

THE FOREST DEPARTMENT PLANTATIONS.

The most important of the twelve rubber plantations of the Dutch East Indies Forest Department in 1915 covered an area of 7,437 hectares (a hectare is equivalent to 2.47 acres), of which 6,267 hectares were under *Hevea* and 1,161 hectares under *Ficus*. The total production was 212,307 kilos of rubber, and 154,148 kilos of *Hevea* and 58,159 kilos of *Ficus* rubber were sold, partly in Holland and partly in New York, the price obtained being fl. 3.12 per kilo ($0.57 per pound).

Other plantations have a total area of 2,184 hectares, of which 2,145 hectares are devoted to *Ficus*, 24 hectares to

Hevea, and 15 hectares to Ceara. Although the yield was 15-, 486 kilos, only 4,170 kilos were sold, in addition to 5,917 kilos of the year before.

AMERICA AND THE RUBBER INDUSTRY.

The "Nederlandsch-Indisch Rubbertydschrift," in its issue of July 1, 1917, publishes a very readable article on the prospects of the rubber market.

Considering the question of production, and particularly overproduction, the author admits that there may be periods of depression, owing to greater supply than demand, but that in general the trade will not be seriously affected by this condition, for planters will naturally adjust themselves accordingly and reduce their output. On the other hand, experience has shown that where there is no railway communication, motor vehicles are invaluable, and while there are undeveloped territories, such as exist in Russia, Canada, South America and Africa, the automobile will continue to be used and tires will be in demand. Besides this there is an increasing number of uses to which rubber is put.

In connection with the consumption of rubber, the author makes the significant statement that, although British capital practically rules the rubber market, only 13 per cent of the total rubber output enters Great Britain, while America, with only a comparatively small capital invested in rubber plantations, consumes 60 per cent of the world's production. Against the observation that it is dangerous for the rubber trade to be dependent to such an extent on the demand of a single country, he points out that America may import millions of pounds of rubber but that she herself produces not a single pound, and furthermore that American capital is but slightly interested in production.

It is interesting to compare this view of the situation with the sentiments on the same subject of another Dutchman, a man who has had several years' experience in the Dutch East Indies and who now occupies a responsible office in his home country. According to this authority, American investments in Dutch East Indian agricultural enterprises, rubber among the rest, are not only highly desirable, but very welcome. He regards the opening up of rubber lands by Americans as most profitable to his country, and deplores the fact that more Americans have not settled in these colonies.

TRADE WITH JAPAN.

Trade with Japan is expanding; imports were considerable throughout the year 1916 and show increases over the totals of the previous year for practically all items. The imports of bicycles from Japan, for example, advanced from 918 in 1915 to 4,530 in 1916, while the number of bicycle tires from the same source was 67,924 in 1916, as compared with 15,582 in 1915.

Business men here declare that Japanese deliveries are rather uncertain and not always satisfactory as regards quality. Their business methods, too, make it rather difficult for Europeans to deal with them. It is, therefore, not surprising that the opinion prevails that as soon as peace reopens the European markets Japan will have to take a back seat in many instances.

JAVAN RUBBER MACHINERY.

The Kalimas Machinery Works, of Soerabaia, Java, is receiving orders for machines for the rubber industry, now that these are no longer arriving from Europe. The factory delivers four of these machines a week and has orders for months ahead.

DISCOVERY OF TALC IN THE TRANSVAAL.

Talc has been discovered in the Verdite Mines, near Barberton, in the Transvaal Province, South Africa. The deposit is said to be superior in quality and almost inexhaustible in quantity. Verdite talc is already being used in the manufacture of soap, talcum powder, chalk and paint in South Africa.

THE SITUATION IN MALAYA.

By Our Regular Correspondent.

THE question of the rubber duty is attracting some attention at present. The duty is fixed weekly and is based on a cable, giving the prices current in London during the previous seven days. Why the Federated Malay States Government should look to London for prices when the local prices are issued weekly is anything but clear. The tax, as matters stand at the present, does not seem quite fair. For the week in which this is written the "Government Gazette" gives 2*s.* 9*d.* a pound as the basis of combination and $145 a picul as the local equivalent. Remark this fact: the $145 applies to every picul of rubber produced, though 30 to 35 per cent of it is of inferior grades. We give the figures of the Singapore Chamber of Commerce for the auctions of the same week:

	First Day.	Second Day.
Smoked sheet:		
Fine ribbed	$120 to $123	$121 to $126
Good ribbed	107 to 119	108 to 120
Fine plain	108 to 111	... ...
Good plain	105 to 107	... ...
Unsmoked sheet:-		
Fine ribbed	... 112	... ...
Good ribbed	104 to 106	... 97
Fine plain	... 117	... ...
Good plain	105 to 106	... 95
Crêpe:		
Fine pale thin	122 to 126	124 to 128
Good pale thin	116 to 121	118 to 128
Good pale blanket	117 to 124	... ...
Good brown blanket	108 to 113	... ...
Fine brown	108 to 116	108 to 114
Good brown	92 to 106	94 to 106
Good dark	71 to 97	81 to 97
Barky	64 to 80	68 to 90
Scrap:-		
Virgin and pressed	50 to 70	75 to 85
Loose	... 45	75 to 70

Note.—A picul equals 133⅓ pounds. Quoted in S. S. dollars = 2/4 [56.7 cents].

The highest price is $128; the lowest is $45; and every picul is taxed at $145. The local companies suffer themselves to be so taxed almost without a protest, and as though every pound of rubber they produced were No. 1 crêpe. One well-known rubber man gives the following instance of a small estate making smoked sheet and scrap crêpe: After deducting the local charges on shipping from the Federated Malay States to Singapore and selling at the auction there, the following note values would have been obtained according to the average prices given in the last published list, viz.:

	For Every 100 Piculs of Rubber Produced.	
75	piculs of smoked sheet at $118 net	$8,850
5	piculs of fine brown crêpe at $105 net	525
15	piculs medium brown crêpe at $87 net	1,305
5	piculs bark crêpe at $72 net	360
100	Total for 100 piculs	$11,040

This shows an average of $110 per picul, compared with the government assessment price of $145.

A local company or privately owned estate has to pay 7½ per cent on $145, but will actually be paying nearly 10 per cent on the net cash realized, i. e., on $110 per picul.

But why $145? The least that must be allowed for freight and insurance, to mention nothing more, is 4½*d.* a pound. That would make the local figure 2*s.* 4½*d.* But $145 is equal to 2*s.* 6¾*d.* or 2¼*d.* more than the proper figure. As we have seen, rubber locally fetches much less than 2*s.* 6¾*d.* a pound. The best price this week was 2*s.* 2*d.* and last week it was less, though the $145 basis then held. The difference is roughly 5*d.* a pound, and it is in favor of the government.

More and more of the producers are selling locally, and this has served to force forward the question. The government should not only take the local figures as a basis, but it should also revert to the old system of taking two grades of duty—one for first quality rubber and the other for scrap. If the duty on tin can follow the local prices, so can and should the duty on rubber.

TAIPING HOSPITAL INADEQUATE.

The question of estate hospitals was raised at the general meeting of the Planters' Association of Malaya and some of the remarks made were interesting.

W. H. Tate, secretary of the Taiping District Planters' Association, spoke of the large number of cases now treated in the Taiping Hospital as compared with long ago. The equipment of the hospital, he alleged, was very inadequate, and did not include an X-ray apparatus. He knew of two cases where men had broken their legs, and one of them had to go to Medan for treatment because there was no X-ray apparatus here. He thought that the government should be asked to carry out the requests of estates in this respect.

Dr. W. J. Dixon said there was not the slightest doubt that the absence of X-ray apparatus had led to considerable difficulty both in the diagnosis of fractures and in further treatment, and also stated that it was desirable that there should be a proper medical side and a surgical side in these hospitals with trained men adequately paid. Dr. Kingsley Ward supported this contention.

STAMPING OUT MALARIA.

The question of ravines and mosquitoes is exciting attention. Dr. Strickland, who suggests having ravines grown in blukar, has been severely criticised, but one well-known planter's experience seems conclusive. He writes: "Up till the date I took charge of a large estate no fever was known to exist there and during the first six months I lived there only three fever cases occurred amongst a labor force of over 1,000 coolies. The visiting agent then recommended clearing up several ravines, which at that time were and always had been in heavy blukar. This work was carried on and within one month after felling and burning the jungle 50 per cent of the labor force on one division suffered daily from malaria. On two other divisions the same result was obtained and the death rate, which up till then had been practically nil, rose to 60 per thousand and two new lines had to be abandoned on account of ill health. Matters were getting serious, and when I mentioned these facts to Dr. Strickland he took a great interest in the matter and gave me certain advice as to how to cope with the difficulty. I followed this and we have today again a healthy estate with a daily average for the year of only 2¼ fever cases amongst a labor force of 1,000 coolies, of which about 650 are Tamils, recruited from India. About two months ago a certain malaria scientist visited the estate and found no malaria-carrying mosquitoes in ravines grown in blukar, nor in standing water in pits caused by bullocks nor in tins found near lines and ravines; whereas in two ravines with clear running water and where the blukar has been so carefully stumped out that it will not grow up again, malaria-carrying mosquitoes of various species were found. In a swamp with a wide stream of water in the center, but where the water was mixed with a red, oily looking substance, not even a single larva of the ordinary house mosquito could be found."

GERMAN COMPANY BUYING PROPERTY.

Reports state that the Continental Caoutchouc & Gutta Percha Co., of Hanover, Germany, has been buying land and property in different parts of Germany, either with the intention of providing for extension after the war or for investment. The lands and buildings acquired are scattered over Berlin, Hamburg, Stuttgart, Mannheim and Nuremberg.

NO GERMAN HOME-GROWN RUBBER.

In a previous issue of THE INDIA RUBBER WORLD mention was made of reported elaborate plans for exploiting species of the *Euphorbia*, which were said to contain a certain percentage of rubber. It has since been stated that the hope of obtaining rubber from these plants has been given up.

BRAZILIAN NOTES.

A RECENT issue of the "Folha do Norte" notes with indignation an instance of official slackness, as experienced by the citizens of the Acre region. It appears that 62 mail bags for these parts were abandoned at the mouth of the Acre, so that the inhabitants of the district had to resort to putting up posters in the city of Rio Branco reading: "Alms for transporting the 62 mail-bags from Bocca do Acre to this city, for the love of God."

Let it be noted that this district, which produces great quantities of rubber, probably pays the largest amount in taxes to the government.

JAPANESE IN PARA.

A correspondent of the "Folha do Norte" lately declared that Para, would be greatly benefited by forming relations with Japan. If, for example, the steamers of the Osaka Shosen Kaisha and the Nippon Yusen Kaisha regularly touched Para, increased space would be afforded the various products of the region, rubber especially. Furthermore, Japan, which at present uses practically nothing but Asiatic rubber for her growing rubber goods industry, would then be encouraged to obtain supplies from Para.

Another point put forward was that vast territories in Brazil, the Para region among others, were left unexploited for lack of suitable labor. Japan, with her too numerous population, would find an outlet in Para for the superfluous numbers that were debarred from Australia, Canada and one or two other young countries. Already more than 16,000 Japanese had settled in the state of Sao Paulo and arrangements were being made to ship an additional 20,000 Japanese immigrants at the rate of 5,000 per year for four years. As Governor Sodré has favored the idea of colonization in Para by Japanese, it should be a simple matter to start the introduction of this new labor.

TRADE NOTES.

Theodoro Putz has withdrawn from the firm of Theodoro Putz & Co., rubber manufacturers, Sao Paulo. His partner, Alfredo Luthold, is now assuming responsibility and will continue the same line of business under the name of Fabrica Nacional de Artefactos de Borracha (National Rubber Goods Factory).

The German firms, Berringer & Co. and Seligman & Co., have handed in a protest at the sectional court against the Lloyd Brazileiro. It appears that the above-named firms had obtained cognizance of a letter addressed to the Para agents of the shipping company, ordering that shipping space be refused them.

José Amando Mendes, lately retired from the house of J. Marques, has now established himself in Manaos, where he will conduct his business of exporting rubber and other local products on a commission and consignment basis.

BORNEO RUBBER SUPPLANTING OTHER CROPS.

According to latest reports, the year 1916 was commercially satisfactory in the state of Brunei, Borneo, and the revenue showed an increase over that of the previous year.

Rubber cultivation is progressing; several new estates came into bearing and shipments of Para rubber increased considerably, the total value of rubber exports being $63,565 against $23,171 in 1915.

Although the expansion of rubber cultivation in these parts has brought prosperity, some of its results are causing a good deal of anxiety. The Bruneis are not an agricultural people, having taken to it only very recently, and naturally turned to the most profitable and least troublesome crop. Consequently no attention is paid to such products as fruits, coconuts, pepper, etc., and it is feared that in the event of a serious disease attacking rubber in Brunei, agriculture may cease.

Recent Patents Relating to Rubber.

THE UNITED STATES.

ISSUED OCTOBER 23, 1917.

NO. 1,243,693. Sanitary apron. J. L. Bornstein, Dayton, Ohio.
1,243,764. Rubber pedal-pad. G. H. Rives, New York City.
1,243,806. Nipple for nursing bottles. M. C. Buchanan, Chicago, Ill.

1,243,840. Syringe nozzle point. G. W. Jessup, Boston, Mass.
1,244,014. Self-alining transplit rim. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.
1,244,022. Straight-side demountable rim. W. N. Booth, assignor to Kelsey Wheel Co., Inc.—both of Detroit, Mich.
1,244,026. Tire-tread. R. M. Callaway, Monett, Mo.
1,244,027. Combination arch-support and heel-cushion. J. P. Calvey, assignor of one-half to C. Polaner—both of Youngstown, Ohio.
1,244,037. Vehicle-wheel rim. A. De Rosa, Brooklyn, N. Y.
1,244,181. Valve and alarm for tires. A. A. Dennis, assignor of one-half to H. G. Krekel—both of Grand Rapids, Mich.
1,244,209. Cushion-tire. F. Hickman, assignor of one-half to Bound Brook Oil-Less Bearing Co.—both of Bound Brook, N. J.
1,244,236. Puncture-proof tube and process of producing same. W. S. Oberfelder, Chicago, Ill.
1,244,244. Anti-skidding device for dual tread tires. A. L. Riker, Fairfield, assignor to The Locomobile Co. of America, Bridgeport—both in Connecticut.
1,244,330. Tire-valve. E. E. Holt, Chicago, Ill.
1,244,337. Pneumatic tire. C. A. Johnson, Waycross, Ga.
1,244,347. Pneumatic tire. J. C. Barker, London, England.

ISSUED OCTOBER 30, 1917.

1,244,498. Eye-cup comprising a removable tube and nipple. B. C. Heath, Louisville, Ky.
1,244,577. Hose-clamp. C. D. Bennett, Goose Creek, Texas.
1,244,624. Surgical apparatus. F. M. McDonald, Los Angeles, Cal.
1,244,666. Hose-coupling. C. A. Welker, New York City.
1,244,685. Transplit demountable rim. E. K. Baker, assignor to Universal Rim Co.—both of Chicago, Ill.
1,244,751. Rectal plug. A. S. McCleary, Kansas City, Mo.
1,244,948. Bulb-operated aquatic toy. F. W. Brown, assignor to M. M. Wollner and C. M. Wollner—all of New York City.
1,245,003. Elastic gasket. C. I. E. Mastin and C. R. Mastin—both of Hawthorne, N. J.
1,245,090. Tire structure. P. M. Devenis, Waterbury, Conn.

ISSUED NOVEMBER 6, 1917.

1,245,196. Rubber composition. N. D. Crawford, Elizabeth, N. J., assignor to New York Belting & Packing Co., New York City.
1,245,217. Ear tube. F. Gottschalk, Hilton, N. J.
1,245,232. Tire shield. C. A. Hoskins and J. L. Metier—both of Drakes Creek, Ark.
1,245,253. Toe glove comprising elastic strips. M. Marglous, St. Louis, Mo.
1,245,296. Resilient tire. E. A. Wilson, assignor of one-third to F. C. Brocker—both of Portland, Ore.
1,245,413. Cushion tire for vehicles. J. F. White, Pittsburgh, Pa.
1,245,444. Toy balloon. F. J. Creque, Cuyahoga Falls, Ohio.
1,245,524. G. T. Stott and T. J. Heafey—both of Springfield, Ohio; said Stott assignor to said Heafey.
1,245,534. Toe portion of boots and shoes. J. E. Traver, assignor to The Goodyear's Metallic Rubber Shoe Co.—both of Naugatuck, Conn.
1,245,802. Rubber soled shoe. W. A. Rounds, Cleveland, Ohio.
1,245,838. Pneumatic tire. H. B. Wallace, St. Louis, Mo.
1,245,847. Oversole. H. L. Wilt, Kansas City, Mo.
1,245,859. Inner tube. G. C. Berryman, Los Angeles, Cal.
1,245,873. Tire valve. E. W. Cole, Plainfield, N. J.
1,245,912. Hose coupling. R. G. Hedden, Arrowrock, Idaho.
1,245,927. Dust cap for tire valves. H. P. Kraft, Ridgewood, N. J.

THE UNITED KINGDOM.

ISSUED OCTOBER 10, 1917.

108,665. Leather making machines. R. F. Whitney, 81 Walnut street, Winchester, Massachusetts, U. S. A.
108,669. Machine for wrapping round tablets provided with rubber-covered rollers. Chocolat Tobler, Limited, 40 Langgasstrasse, Bern.
108,675. Wringer or mangle rollers covered with rubber. E. Lehmann, Zurich, Switzerland.
108,680. Tire valves. A. Schrader's Sons, Inc., 783 Atlantic avenue, Brooklyn, New York, U. S. A.
108,707. Electrolyzer with India rubber tubing. G. G. Hepburn, 52 Newport Road, Chorlton-cum-Hardy, Manchester.
108,785. Rim attachment with band of canvas and rubber. A. Spencer, 77 Cannon street, London.

ISSUED OCTOBER 17, 1917.

108,848. Rubber ring device for attaching pens, etc., to wearing apparel. V. Bertolotti, 49 Corso Regina Margherita, Turin, Italy.
108,908. Air-tube or single tube tire. H. B. Wallace, 401 South Seventh street, St. Louis, Missouri, U. S. A.
108,957. Inflatable life-belt. J. A. Simpson, 98 Russett avenue, Toronto, Canada.
108,969. Double reservoir pen for inks of different colors. C. L. G. Chapman, Farnhurst, Eleanor street, and R. Smith, 34 Torrington street—both in Grimsby, Lincolnshire.
109,011. Block tire attachment to rims. W. T. G. Ellis, care of R. McLeod, 15 Cambridge street, Glasgow.

ISSUED OCTOBER 24, 1917.

109,025. Pneumatic tire. H. B. Wallace, 401 South Seventh street, St. Louis, Missouri, U. S. A.
109,032. Reservoir pens. A. L. Sowerby, Baconsthorpe, Holt, Norfolk.
109,070. Non-skid tread. Dunlop Rubber Co., 14 Regent street, Westminster, and C. Macbeth, Manor Mills, Salford street, Aston, Birmingham—both in England.
109,080. Bust support comprising elastic portions. A. A. Dale, Eastland House, Leckhampton Road, Cheltenham.
109,082. Reinforcing insertion for tire covers. J. H. Christain, 29 East Euclid avenue, Detroit, Michigan, U. S. A.
109,114. Thin rubber passage lining for use in surgical operations. F. W. Golby, 36 Chancery Lane, London. (A. O. Kuhn, 1411 Euclid avenue, Berkeley, California, U. S. A.).
109,122. Galvanic battery cell with rubber ring joint packing. C. Kelway-Bamber, 9 Victoria street, Westminster.
109,134. Shoulder braces and bust supports. H. V. A. Loring, 4557, Oakenwald avenue, Chicago, Illinois, U. S. A.
109,203. Rubber-tired vehicle wheel. A. Boerner, 37 Zeekant, Scheveningen, Holland.

THE DOMINION OF CANADA.

ISSUED JULY, 1917.

177,945. Life preserver. J. H. Elliott, Montreal, Canada.
178,002. Tire chain. Desforges, Montreal, Canada.
178,059. Inflatable life-preserver. B. A. Geiger, Chicago, Illinois, U. S. A.
178,170. Internal bath mechanism. E. Carlsen, Chicago, Illinois, U. S. A.
178,176. Double-headed elastic button joint for dolls. G. R. Dice, Ashland, Ohio, U. S. A.
178,501. Rubber eraser-end for pencils. F. Ziemer, Freeport, New York, U. S. A.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION.)

483,797. (February 21, 1916). Rubber shock absorber. E. Burnand.
483,862. (December 16, 1916). Semi-solid tire for motor vehicles and others, replacing the inner tube and adaptable for the same casings. R. Ducos.
483,868. (December 18, 1916). Waterproof garment for divers, sailors and submarine sailors. B. N. C. Mollard.
483,913. (December 18, 1916. Process for manufacturing shoes with rubber soles. United Shoe Machinery Co. of France.
483,918. (December 19, 1916). Process for treating rubber. Morgan & Wright Co.
483,934. (December 20, 1916). Shoes with removable soles. A. E. Devos.
483,959. (December 22, 1916). Tire for wheels of automobiles and other vehicles. A. A. Crozier.
483,960. (December 22, 1916). Improvements in tires for automobiles and other vehicles. A. A. Crozier.
483,991. (December 15, 1916). Non-skid, protecting metal fillet. J. Fazan.
483,994. (December 27, 1916). Improvements in tire valves. C. A. Iorns.

TRADE MARKS.

THE UNITED STATES.

97,866. The word USCO—fan belts, radiator hose, belts, and tubing made of rubber, fabric, or rubber and fabric. United States Rubber Co., New Brunswick, N. J., and New York City.
102,243. Representation of a scarab—golf balls. Capper & Capper, Detroit, Mich.
105,150. A circle enclosing the word CIRCLE—belting of rubber and fabric. The Gutta Percha & Rubber Manufacturing Co., New York City.
97,629. The word HIPPO—rubber boots and shoes. United States Rubber Co., New York City.
97,630. Representation of the head of a hippopotamus—rubber boots and shoes. United States Rubber Co., New York City.
99,319. The letters B & B—adhesive plasters and tapes, absorbent and medicated cottons, surgical dressings, plain and medicated gauze, moist and dry, bandages, protective dressings, oil-silk, and surgical rubber goods. Bauer & Black, Chicago, Ill.
103,804. The word THOROGOOD—shoes made of leather, canvas, rubber and a combination of said materials. Albert H. Weinbrenner Co., Milwaukee, Wis.
105,025. The word CRUSOE—rubber heel plates. H. G. Robinson, Albany, Cal.
105,828. The word VENUS—rubber erasers. American Lead Pencil Co., New York City.

Chemical Patents will be found on page 151. Machinery and Process Patents on pages 153-154.

THE UNITED KINGDOM.

378,431. The word IRIS—india rubber heels, india rubber tips, and india rubber soles for boots and shoes. Leyland & Birmingham Rubber Co., Limited, Golden Hill Works, Leyland, Lancashire.

379,157. Representation of the letter Z with the word IT on each side—india rubber tires. Etablissements Hutchinson, 70 Basinghall street, London, E. C. 2, and 60 Rue St. Lazare, Paris.

378,420. A square enclosing a triangle which contains the words RUBTOS TRADE-MARK—packing and hose of all kinds, not included in other classes. Chorley Rubber Limited, Weldbank Works, Whittam Road, Chorley, Lancashire.

377,656. The word SUNKIST—chewing gum. F. Wigley, 82 Macauley Road, Kensington, Melbourne, Victoria, Australia.

378,849. The words CLINCHER CROSS—golf balls and tees, golf bags, cricket bags, batting gloves, quoit rings and washers for playing the game of parlor quoits. The North British Rubber Co., Limited, Castle Mills, Edinburgh, Scotland.

THE DOMINION OF CANADA.

22,724. Representation of a pair of martins perched on telegraph wires, and enclosed within a circle—footballs, golf balls, and other sporting articles. Martins-Birmingham, Limited, New Works, Granville street, Birmingham, England.

22,744. The letters S. O. S.—life-saving appliances, and particularly life-saving suits and life-belts. Joseph Edmond Lepage, Montreal, Quebec.

22,751. The word METRIC—packing for machinery, rubber belting and hose. Metric Packing Co., Buffalo, New York.

22,770. The word PARATEX—rubber composition goods. Andrew Edward Rea, Toronto, Ontario.

NEW ZEALAND.

13,913. Representation of a winged foot dividing the word GOODYEAR—engineering, architectural, and building contrivances. The Goodyear Tyre & Rubber Co. of New Zealand, Limited, Mercer street, Wellington, New Zealand.

13,928. Representation of a winged foot—packing of all kinds. The Goodyear Tyre & Rubber Co. of New Zealand, Limited, Mercer street, Wellington, New Zealand.

13,912. A winged foot dividing the word GOODYEAR—instruments, apparatus, and contrivances, not medicated, for surgical or curative purposes, or in relation to the health of men or animals. The Goodyear Tyre & Rubber Co., of New Zealand, Limited, Mercer street, Wellington, New Zealand.

13,923. Representation of a winged foot—engineering, architectural, and building contrivances. The Goodyear Tyre & Rubber Co. of New Zealand, Limited, Mercer street, Wellington, New Zealand.

DESIGNS FOR TIRES.

THE UNITED STATES.

51,413. Elastic vehicle tire. Term 3½ years. Patented October 23, 1917. G. W. Greene, East Liverpool, Ohio.

51,418. Tire-tread. Term 14 years. Patented October 23, 1917. C. L. Landon, Akron, Ohio.

51,423. Tire-tread. Term 3½ years. Patented October 23, 1917. W. H. Owens, Muskogee, Okla.

51,413 51,418 51,423 51,428 51,429 51,435 51,452

51,428. Automobile tire. Term 14 years. Patented October 23, 1917. C. L. Archer, Minneapolis, Minn.

51,429. Non-skid tire-tread. Term 7 years. Patented October 23, 1917. C. L. Archer, Minneapolis, Minn.

51,435. Tire-tread. Term 7 years. Patented October 30, 1917. W. C. Beckwith, Fostoria, Ohio.

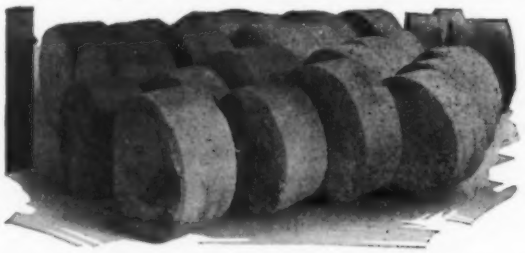
51,452. Tire tread. Term 7 years. Patented November 6, 1917. W. C. Beckwith, Fostoria, Ohio.

RUBBER IN SOUTH INDIA.

Judging from the latest reports of companies in South India, rubber cultivation there is giving highly satisfactory results. The ten leading plantations produced more than three and one-half million pounds of rubber in the past year; on the whole, this yield was far greater than estimated, and considerably in excess of the production of 1915. Prices obtained are favorable, approaching the average for 1915, and this circumstance, added to the fact that expenses are generally lower, warrants the expectation of high dividends. Indeed, the Pudukad and Cochin companies have already declared dividends of 40 per cent and 30 per cent, respectively.

LARGE SHIPMENT OF BELTING TO INDIA.

The accompanying illustration shows a large order for rubber belting shipped by the Boston Belting Co., Boston, Massachusetts, to the Burma Mines Corporation, Tawng Peng, via Rangoon. The belting will be used for conveying and elevating the ore in the new mills of the Baldwin mines.



The shipment, weighing 22 tons, will have traveled about 18,000 miles or nearly three-quarters of the way around the earth before it finally reaches its destination.

Belting orders of this description are an indication that American rubber manufacturers are getting foreign business and that war material is not wholly responsible for the business boom.

STATEMENT OF THE INDIA RUBBER WORLD.

Statement of the ownership, management, etc., required by the Act of Congress of August 24, 1912, of THE INDIA RUBBER WORLD, published monthly at New York, N. Y., for October 1, 1917.

STATE OF NEW YORK } ss.
COUNTY OF NEW YORK }

Before me, a notary public in and for the State and county aforesaid, personally appeared E. M. MacPhee, who, having been duly sworn according to law, deposes and says that she is the Business Manager of THE INDIA RUBBER WORLD, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, The India Rubber Publishing Co., 25 West Forty-fifth street, New York City.

Editor, Henry C. Pearson, 83 Agawam Road, Waban, Massachusetts.

Managing Editor, None.

Business Manager, E. M. MacPhee, 25 West Forty-fifth street, New York City.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

Henry C. Pearson, 83 Agawam Road, Waban, Massachusetts.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by her.

E. M. MACPHEE, Business Manager.

Sworn to and subscribed before me this 1st day of October, 1917.

[SEAL] FREDK. SPRENGER
Notary Public, Westchester County.
Certificate filed in New York County.
New York County Clerk No. 188. Register's No. 8226.
(My commission expires March 30, 1918.)

INEQUALITIES OF THE EXCESS PROFITS DUTY.

In previous issues of THE INDIA RUBBER WORLD mention was made of the inequalities of the excess profits duty in the case of British East Indian rubber producing companies. An excellent example of its practical operation is found by comparison of the Seaport and Third Mile companies. The first has an area in bearing of 900 acres and was liable, in the first two accounting periods under the act, for duty to the amount of only £2; while for a similar period the Third Mile Rubber Co., with an area in bearing of 930 acres, was taxed to the amount of £16,089.

Review of the Crude Rubber Market.

Copyright 1917.

NEW YORK.

DEPRESSION has ruled in the crude rubber market throughout the entire month of November that has been featured by a steady decline in values. Manufacturers have managed to supply their immediate requirements without disturbing the easy undertone that has characterized all grades of crude rubber for the past month. Rubber is undoubtedly a cheap commodity at the present values, that are considered by many to be very close to bed-rock. However true this may be, the curtailment of automobile production as a necessary aid to the production of war materials may preclude the possibility of a strong rubber buying movement for the present, but until the curtailment of tire production actually takes place, there will be possibilities in the crude rubber market. During the last week manufacturers' inquiries were reported and resulted in giving the market a better undertone.

PLANTATIONS.—There has been little business done even at the lowest prices of the month. Prices have steadily declined since November 1, when First latex crêpe spot was 64 cents and January-June futures were quoted at the same figures. Smoked sheet ribbed, spot and January-June futures, were 62 cents. On November 27, First latex crêpe spot and January-June futures were quoted 57 cents. Smoked sheet ribbed, both spot and January-June deliveries were 55½ cents.

PARAS.—The steady decline of Paras to the present low values is a most unusual situation for these grades. It would seem that with Upriver fine at 55 cents and Islands fine at 45 cents, rock bottom has been reached. Upriver fine has declined from 63½ cents on November 1 to 55½ cents, the quotation on November 27.

AFRICANS.—The arrivals were comparatively small, resulting in very little business being done in this material. Prices show marked declines in all grades.

CENTRALS.—The market on central grades has shown a general decline of five to eight cents within the last month, due to the fact that the large orders were for Para grades, which were selling at lower prices. The stocks on hand are quite heavy, but are being held in strong hands waiting for a rise in the market.

BALATA.—Balata has continued very firm with a slight increase in price due to local demand. The arrivals continue to come in quite regularly in fairly large quantities.

MANICOBAS.—Business in Manicobas has been lifeless all through the month just passed, with a few scattering sales of small lots made on a basis of 40 cents for Special.

LONDON.

The London market has not presented any features worthy of recording other than a steady decline of values. November 1, First latex crêpe, spot was quoted 32¾*d.* and smoked sheet ribbed, spot 30¼*d.*, with futures at a premium. On November 26 First latex spot had declined to 30¼*d.* and smoked sheet ribbed was 29½*d.* for prompt shipment.

STATISTICS.—London and Liverpool imports for September were 4,700 tons, value £1,294,030, compared with 4,117 tons, value £1,103,368, for August. Reexports for September were 1,870 tons, value £543,535, compared with 3,713 tons, value £1,116,351, for August.

SINGAPORE.

A dull and irregular market has been reported from Singapore. The demand has been poor and prices show a steadily downward trend. At the auctions held October 27, November 3, 9, 17 and 24, first latex crêpe averaged 49.32 cents, compared with 52.59 cents last month. Smoked sheet rubber averaged 49.55 cents compared with 52.06 a month ago. Total amount sold was 2,283 tons compared with 1,879 for the previous month.

NEW YORK SPOT QUOTATIONS.

	Dec. 1, 1916.	Nov. 1, 1917.	Nov. 27, 1917.
PLANTATION PARAS—			
First latex crêpe, *Hevea first crêpe	73 @	63½ @	56½ @
Amber crêpe No. 1, gristly blanket	71 @	58 @	49 @
Amber crêpe No. 2	70 @	57 @	48 @
Amber crêpe No. 3	69 @	56 @	47 @
Amber crêpe No. 4	68 @	55 @	46 @
Brown crêpe, thick clean	68 @	57 @	47½ @48
Brown crêpe, thin clean	68 @	57 @	48½ @49
Brown crêpe, thin specky	65 @	55½ @	45 @
Brown crêpe, rolled	53 @	39 @	35 @
Smoked sheet, ribbed standard quality, *Hevea ribbed smoked sheets	73 @	61¼ @	55 @
Smoked sheet, plain standard quality, *Hevea plain or smooth smoked sheets	@	60 @	52 @
Unsmoked sheet, standard quality, *Hevea unsmoked sheets	@	57½ @	49 @50
Colombo scrap, No. 1	@	45 @	41 @
Colombo scrap, No. 2	@	43 @	39 @
BRAZILIAN PARAS—			
Upriver fine	78 @	63½ @	55 @
Upriver medium	@	57½ @	50 @
Upriver coarse	50 @	12½ @	35 @37
Upriver weak fine	@	52 @	47 @
Upriver caucho ball	50 @	39 @	35 @
Islands fine	71 @	49 @	45 @
Islands medium	@	44 @	40 @
Islands coarse	32 @	27 @	25 @
Cametá	33 @	27½ @	25 @
Lower caucho ball	47 @	37½ @	34 @
Peruvian fine	@	56 @	*52 @
Tapajos fine	@	57 @	51 @
Tapajos caucho ball	@	37½ @	34 @
AFRICANS—			
Accra flake, prime	23 @	27½ @	*28 @
Niger flake, prime	@	28½ @	*28 @
Benguela, extra seconds, 28%	40 @	32 @	33 @
Benguela, No. 2, 32½%	39 @	30 @	30 @
Congo prime, black upper	@	55 @	54 @
Congo prime, red upper	@	55 @	52 @
Rio Nunez ball	@	58 @	60 @
Rio Nunez sheets and strings	@	58 @	60 @
Conakry niggers	58 @	58 @	60 @
Massai sheets and strings	56 @	58 @	60 @
CENTRALS—			
Corinto	47½ @	39½ @	35 @
Esmeralda sausage	47 @	39 @	35 @
Central scrap	46 @	38½ @	34 @
Central scrap and strip	44 @	36½ @	32 @
Central wet sheet	36 @	27 @	25 @
Guayule	37 @39	28 @	27 @
MANICOBAS—			
Ceara negro heads	@	42½ @	**35 @
Ceara scrap	@	24 @	**25 @
Manicoba special	45 @	@	**37 @

Manicoba extra		@		@	**34	@
Manicoba regular		@		@	**30	@31
Mangabeira thin sheet	40	@		@	**37	@
Mangabeira thick sheet		@		@	**31	@
BALATA—						
Block, Ciudad Bolivar	65	@	70	@	**71	@72
Colombian	47	@	51	@	76	@
Panama	45	@	51	@	53½	@
Surinam sheet	74	@	79	@	82	@
EAST INDIAN—						
Assam crêpe	49	@	59	@	**50	@
Assam onions	45	@	54	@	**45	@
Penang block scrap		@	36	@	**30	@
Pontianak pressed	12½	@	18	@	19½	@21
Bandjermassin		@	12	@	12	@13
Gutta Siak		@	18	@	19	@
Gutta percha, red Macassar	2.00	@	2.00	@	2.00	@ 2.20

*Rubber Association of America nomenclature.
**Nominal.

THE MARKET FOR COMMERCIAL PAPER.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York), advises as follows:

"But little change has occurred in the market for paper during November, from the conditions prevailing for the past three months, New York City banks buying little, but from out-of-town banks there has been a somewhat improved demand, the best rubber names ruling at 6 per cent and those not so well known, 6½ per cent."

COMPARATIVE HIGH AND LOW RUBBER PRICES.

	November,		
Plantation:	1917.*	1916.	1915.
First latex crêpe	$0.57 @0.64	$0.63½@0.73	$0.62 @0.82
Smoked sheet ribbed	.55½@ .62	.63 @ .73	.62 @ .82
Paras:			
Upriver, fine	.55 @ .63	.79 @ .83	.57 @ .76
Upriver, coarse	.37 @ .42½	.46½@ .50	.45 @ .58
Islands, fine	.45½@ .49	.70 @ .71	.64 @ .65
Islands, coarse	.25½@ .25½	.31½@ .32	.28½@ .28½
Cameta	.25½@ .26½	.31 @ .33	.29½@ .36

*Figured only to November 27.

MARKET CABLES FROM LONDON

The following market report has been cabled from London:

Date.	Standard Crêpe. Per Lb.	Ribbed Smoked Sheets. Per Lb.	Market.
November 5	33 *d.*	31 *d.*	Firm
November 12	31½*d.*	29 *d.*	Easy
November 19	30¼*d.*	29½*d.*	Weak
November 26	30¼*d.*	29½*d.*	Easy

WEEKLY RUBBER REPORT.

GUTHRIE & CO., LIMITED, Singapore, report [October 11, 1917]:

The weekly rubber auction which commenced yesterday again disclosed a dull market, and, though prices for the leading grades were practically the same as those paid last week, bidding was very slow, and a large proportion of the rubber offered was bought in. The top price for fine pale crêpe was $1 up at $125 per picul (paid for one lot only), and that for ribbed smoked sheet $1 down at $121. Smoked sheet lower than prime quality was very difficult to move, and comparatively little was sold. Brown and dark crêpes were in rather better demand, and appreciated about $5 on the week. Of 1,248 tons cataloged, 570 tons were sold.

The following was the course of values:

	In Singapore per Picul.*	Sterling Equivalent per Pound in London.	Equivalent per Pound in Cents.
Sheet, fine ribbed smoked	$117@121	2/ 5⅛@2/ 5⅞	49.73@51.43
Sheet, good ribbed smoked	103@116	2/ 2⅛@2/ 4⅞	43.78@49.30
Sheet, plain smoked	110@111	2/ 3⅝@2/ 3¾	46.75@47.18
Crêpe, fine pale	121@125	2/ 5⅞@2/ 6¾	51.43@53.13
Crêpe, good pale	116@120	2/ 3⅝@2/ 5¾	46.75@51.00
Crêpe, fine brown	90@111	1/11⅜@2/ 3¾	38.25@47.18
Crêpe, good brown	80@ 98	1/ 9¼@2/ 1⅛	34.00@41.65
Crêpe, dark brown	60@ 90	1/ 5⅛@1/11⅜	25.50@38.25
Crêpe, bark	48@ 85	1/ 2⅝@1/10⅜	20.40@36.13
Scrap, loose	65@ 70	1/ 6⅛@1/ 7¼	27.63@29.75

* Picul = 133⅓ pounds.
Quoted in S. S. dollars = 2/4 [56.7 cents.]

MARKET CABLE SERVICE FROM SINGAPORE.

The following reports of the weekly auctions held at Singapore have been cabled by The Waterhouse Co., Limited:

Date.	Crêpe. Price per lb.	Smoked Sheet. Price per lb.	Tons Sold.	Market.
October 27..*cents*	51.70	50.80	705	Firm with improved demand.
November 3	51.70	51.43	538	Not much changed; tendency slightly in favor of buyers.
November 9	51.00	51.00	410	Weakening; no buyers.
November 17	47.60	47.18	207	Dull and prices irregular.
November 24	44.63	46.33	423	No demand for poorer grades.

PLANTATION RUBBER FROM THE FAR EAST.

TOTAL EXPORTS FROM MALAYA.

(From January 1, 1917, to dates named, excluding all foreign transshipments. Reported by Barlow & Co., Singapore.)

	From				
To—	*Singapore. June 30, 1917.	*Malacca. June 30, 1917.	*Penang. June 30, 1917.	Port Swettenham. Sept. 27, 1917.	Totals.
United Kingdom..*lbs.*	24,844,780	2,201,114	12,810,867	20,040,139	59,896,900
The Continent	8,536,637	.....	47,067	.....	8,583,704
Japan	1,869,869	.....	.....	.....	1,869,869
Ceylon	152,334	.....	224,155	538,064	914,553
U. S A. and Canada	66,560,632	.....	6,240,890	553,264	73,354,786
Australia	289,045	.....	.....	.....	289,045
China (Hongkong)	.....	.....	.....	47,052	47,052
Totals	102,253,297	2,201,114	19,322,979	21,178,519	144,955,909
Same period, 1916	62,176,305	3,442,134	15,863,767	25,043,779	106,525,985
Same period, 1915	34,367,101	4,329,778	12,621,996	22,416,407	73,735,282
Same period, 1914	18,511,130	2,548,819	10,407,734	22,228,203	53,695,886

* No further figures available under restrictions.

STRAITS SETTLEMENTS RUBBER EXPORTS.

The export of plantation rubber from Straits Settlements ports in the month of September, as officially reported by cablegram from Singapore, amounted to 5,679 tons, compared with 3,786 tons in August, and 2,987 tons in the corresponding month last year. The total export for nine months of the present year was 56,332 tons, compared with 34,951 tons in 1916 and 24,953 tons in 1915. The transshipments last month amounted to 467 tons, in August 420 tons, and in July 224 tons.

Appended are the comparative statistics:

	1915.	1916.	1917.
January ..... *tons*	2,576	4,443	3,562
February	2,741	3,359	6,495
March	2,477	4,481	8,299
April	1,978	4,219	6,103
May	3,588	3,274	6,282
June	2,249	3,836	8,775
July	2,324	5,106	7,351
August	2,295	3,246	3,786
September	4,725	2,987	5,679
Totals	24,953	34,951	56,332

FEDERATED MALAY STATES RUBBER EXPORTS.

An official cablegram from Kuala Lumpur states that the export of cultivated rubber from the Federated Malay States in the month of October amounted to 7,079 tons, compared with 7,087 tons in September and 5,968 tons in the corresponding month last year. The total exports for the year (exclusive of July; figures not received) amount to 60,229 tons, against 50,270 tons for the corresponding period last year and 34,777 tons in 1915. Appended are the comparative statistics:

	1915.	1916	1917.
January ..... *tons*	3,473	4,471	5,995
February	3,411	5,207	7,250
March	3,418	4,429	7,088
April	2,777	3,914	5,955
May	2,708	3,956	7,179
June	3,403	5,114	6,009
July	3,687	5,053	.....
August	3,796	5,782	6,587
September	3,984	6,376	7,087
October	4,120	5,968	7,079
Totals	34,777	50,270	60,229

IMPORTS OF CRUDE RUBBER AT CEYLON.

AUGUST 27-SEPTEMBER 17, 1917.

From— MALAY PENINSULA:	POUNDS.	From— INDIA:	POUNDS.
Port Swettenham	132,532	Tuticorin	94,692
Penang	121,093	Grand Total	367,977
Singapore	19,660		
Total	273,285		

IMPORTS OF RUBBER AND GUTTA AT SINGAPORE.

IMPORTS.

From—	Para Rubber.	Para Rubber for Treatment.	Borneo Rubber.	Gutta Percha.	Gutta Jelutong.
	September 1-29, 1917.				
Malay Peninsula—					
Port Swettenham...*lbs.*	4,014,472	.....	.....	.....	.....
Malacca	2,303,693	501,543	.....	.....	.....
Teluk Anson	1,285,844	6,783	.....	.....	.....
Penang	879,396	419,615	.....	.....	.....
Muar	656,887	.....	.....	.....	.....
Port Dickson	658,217	.....	.....	.....	.....
Johore	237,937	80,199	.....	.....	.....
Kelantan	207,214	15,694	.....	.....	.....
Kuantan	55,594	.....	.....	.....	.....
Pekan	10,241	.....	.....	.....	.....
Rengat	9,044	33,782	.....	.....	.....
Kota Baroe	4,123	.....	.....	.....	.....
Pahang	1,064	.....	.....	.....	.....
Tringganu	931	.....	.....	.....	.....
Totals	10,324,657	1,057,616	.....	.....	.....
Sumatra—					
Djambi	200,298	.....	.....	.....	.....
Deli	90,174	.....	.....	.....	.....
Indragiri	52,136	.....	.....	.....	.....
Siak	46,550	.....	.....	.....	.....
Palembang	34,314	.....	.....	133	16,093
Belawan	17,955	.....	.....	.....	.....
Muntok	6,251	.....	.....	.....	.....
Assahan	4,522	.....	.....	.....	.....
Bengkalis	4,389	.....	.....	.....	.....
Totals	456,589	.....	.....	133	16,093
Borneo—					
Sarawak	152,152	39,368	2,793	10,108	382,641
Bandjermassin	76,874	49,742	3,724	52,934	49,210
Pontianak	81,928	.....	266	32,716	44,023
Sambas	67,697	.....	.....	.....	8,778
Labuan	34,580	.....	.....	266	3,059
Jesselton	29,659	9,177	.....	.....	.....
Sibu	24,339	.....	798	6,384	80,972
Sandakan	15,428	.....	.....	.....	.....
Singkawang	18,487	.....	.....	.....	.....
Passir	10,773	.....	.....	.....	.....
Samarinda	1,729	.....	1,995	4,389	.....
Kudat	399	.....	.....	.....	.....
Sampit	266	.....	.....	.....	.....
Totals	514,311	98,287	9,576	106,797	568,683
Java—					
Batavia	168,245	.....	.....	.....	.....
Tandjong Priok	59,052	.....	.....	.....	.....
Soerabaia	47,880	.....	.....	.....	.....
Samarang	8,246	.....	.....	.....	.....
Cheribon	7,581	.....	.....	.....	.....
Totals	291,004	.....	.....	.....	.....
Burma—					
Mergui	3,059	.....	.....	.....	.....
Rangoon	532	.....	.....	.....	.....
Total	3,591	.....	.....	.....	.....
Siam—					
Bangkok	2,660	.....	.....	.....	.....
Patani	665	.....	.....	.....	.....
Total	3,325	.....	.....	.....	.....
Other ports	746,795	51,471	665	5,985	133,000
Grand Totals	12,340,272	1,207,374	10,241	112,915	717,776

SIX MONTHS' RUBBER EXPORTS FROM PENANG.

To—	1917.	1916.	1915.	1914.
	Six Months Ended June.			
Great Britain ...*pounds*	16,830,400	12,810,533	13,383,867	11,240,400
Continent of Europe	.....	46,667	131,467	998,400
North America	11,275,733	4,516,267	1,261,867	842,400
Totals	28,106,133	17,373,467	14,777,201	13,081,200

PLANTATION RUBBER EXPORTS FROM JAVA.

To—	July 1916.	July 1917.	Seven Months Ending July 1916.	Seven Months Ending July 1917.
HOLLAND:				
Hevea ...*pounds*	8,960	.....	224,000	.....
GREAT BRITAIN:				
Ficus	4,970	.....	23,745	8,521
Hevea	197,120	1,236,480	3,597,440	3,568,320
Ceara	4,591	2,178	53,383	20,684
Castilloa	.....	.....	28,606	24,097
Totals	206,681	1,238,658	3,703,174	3,621,622
UNITED STATES:				
Ficus	944	8,906	33,031	11,484
Hevea	1,783,040	3,301,760	9,329,600	21,035,840
Ceara	.....	.....	11,114	185
Castilloa	.....	.....	.....	11,143
Totals	1,783,984	3,310,666	9,373,745	21,058,652
SINGAPORE:				
Ficus	1,929	2,046	26,169	13,719
Hevea	423,360	188,160	2,502,080	1,872,640
Ceara	1,606	.....	21,712	28,648
Castilloa	220	.....	3,465	3,406
Totals	427,115	190,206	2,553,426	1,918,413
JAPAN:				
Hevea	.....	6,720	.....	6,720
OTHER COUNTRIES:				
Ficus	999	.....	3,791	.....
Hevea	73,920	.....	347,200	20,160
Totals	74,919	.....	350,991	20,160

CRUDE RUBBER ARRIVALS AT THE PORT OF NEW YORK.

The following statistics are not complete, due to Government orders prohibiting access to the records.

[*The Figures Indicate Weight in Pounds.*]

PARAS.

OCTOBER 5.—By the *Sao Paulo*=Para.

	Fine.	Medium.	Coarse.	Caucho.	Cameta.	Totals.
Pell & Dumont	1,000	.....	1,500	.....	.....=	2,500
Hagemeyer & Brunn	11,200	.....	11,200	.....	11,200=	33,600

OCTOBER 20.—By the *Curvello*=Para and Manaos:

General Rubber Co.	95,000	.....	6,700	51,520	.....=	153,220
Pell & Dumont	27,000	.....	26,300	10,700	..... =	64,000
Hagemeyer & Brunn	22,400	.....	.....	22,400	..... =	44,800
Meyer & Brown	94,000	17,600	4,700	12,000	6,500=	134,800
Henderson & Korn	35,600	1,800	11,000	10,900	..... =	59,300

OCTOBER 29.—By the *Wagland*=Para and Manaos:

Henderson & Korn	35,000	800	59,000	.....	.....=	94,800
General Rubber Co.	4,480	.....	.....	47,000	89,600=	141,080
Pell & Dumont	.....	.....	8,000	.....	..... =	8,000
W. R. Grace & Co.	.....	.....	.....	.....	3,630=	3,630
Aldens' Successors, Limited	16,000	400	1,400	.....	.....=	17,800
H. A. Astlett & Co.	64,300	8,500	50,600	23,400	18,200=	165,000
Arnold & Zeiss	17,700	700	8,000	3,500	.....=	29,900

NOVEMBER 1.—by the *Tela*=Para and Manaos:

General Rubber Co.	.....	.....	35,100	.....	13,440=	48,540
W. R. Grace & Co.	12,291	2,158	.....	.....	..... =	14,449
Pell & Dumont	37,450	3,957	300	31,328	.....=	73,035
Hagemeyer & Brunn	.....	.....	44,800	67,200	.....=	112,000
Aldens' Successors, Limited	.....	.....	22,000	.....	..... =	22,000
H. A. Astlett & Co.	129,800	15,800	71,100	19,000	31,300=	267,000
Arnold & Zeiss	31,000	500	26,400	21,200	5,800=	84,900
Meyer & Brown	81,300	6,400	5,700	46,200	4,000=	143,600
Henderson & Korn	48,000	4,000	33,000	42,000	.....=	127,000

NOVEMBER 1.—By the *Ancon*=South America:

W. R. Grace & Co.	.....	.....	.....	2,000	.....=	2,000

NOVEMBER 9.—By the *G. W. Goethals*=South America.

W. R. Grace & Co.	2,422	.....	.....	2,063	.....=	4,485

NOVEMBER 13.—By the *Mercator*=Ecuador:

H. A. Astlett & Co.	.....	.....	.....	6,700	.....=	6,700

NOVEMBER 26.—By the *Sergipe*=Para and Manaos.

Meyer & Brown	118,700	6,700	76,100	76,100	56,000=	333,600

By the *Palena.*

Henderson & Korn	6,800	.....	.....	.....	.....=	6,800

By the *Ocamo.*

Henderson & Korn	.....	.....	35,000	.....	.....=	35,000

PLANTATIONS.

TO NEW YORK.

	Pounds.
OCTOBER 1.—By the *Suruga*=Far East:	
W. R. Grace & Co.	62,064
OCTOBER 6.—By the *Radja*=Far East.	
J. T. Johnstone & Co.	3,640
W. R. Grace & Co.	44,208
OCTOBER 16.—By the *Talabot*=Colombo:	
J. T. Johnstone & Co.	35,000
OCTOBER 16.—By the *Oolabaria*=Colombo:	
J. T. Johnstone & Co.	50,600
OCTOBER 17.—By the *Suruga*=Singapore:	
J. T. Johnstone & Co.	9,000
OCTOBER 24.—By the *Rotti*=Batavia:	
J. T. Johnstone & Co.	11,200
OCTOBER 29.—By the *Lapland*=Liverpool:	
Charles T. Wilson Co., Inc.	7,840
OCTOBER 30.—By the *Elpinor*=Far East:	
Fred Stern & Co.	156,800
NOVEMBER 7.—By the *Hanna Neilson*=Singapore:	
Henderson & Korn	1,907,200
General Rubber Co.	2,240,000
J. T. Johnstone & Co.	208,400
Fred Stern & Co.	560,000
Rubber Trading Co.	165,760
Aldens' Successors, Limited	14,500
Arnold & Zeiss	381,000
Meyer & Brown	58,200
NOVEMBER 12.—By the *Knight of the Thistle*=London:	
Charles T. Wilson Co., Inc.	13,440
NOVEMBER 13.—By the *Unita*=Colombo:	
General Rubber Co.	297,900

POUNDS.

NOVEMBER 13.—By the *City of Edinburgh*=Colombo:

J. T. Johnstone & Co..... 52,400
Fred Stern & Co..... 107,520
Rubber Trading Co..... 20,160
Arnold & Zeiss..... 33,600
Meyer & Brown..... 38,100

NOVEMBER 16.—By the *Niagara*=Colombo:

General Rubber Co..... 549,000

NOVEMBER 19.—By the *Baltic*=London:

Charles T. Wilson Co., Inc..... 6,720

NOVEMBER 20.—By the *Deli*=Colombo:

Charles T. Wilson Co., Inc..... 70,000
Arnold & Zeiss..... 22,400

NO DATES GIVEN.

By the *Eurysalus*=Far East:

Hagemeyer Trading Co..... 4,480

By the *Goentoer*=Far East:

Hagemeyer Trading Co..... 49,280

By the *Mahopac*=London:

Rubber Trading Co..... 2,700

By the *Vinovia*=England:

Fred. Stern & Co..... 44,800

By the *Crofton Hall:*

Hagemeyer Trading Co. (Bolivian)..... 22,400

GUAYULE.

OCTOBER 26.—By the *Almirante*=Galveston, Texas:

Continental Rubber Company of New York 102,000

NOVEMBER 18.—By the *Almirante*=Galveston, Texas:

Continental Rubber Company of New York 53,000

BY RAIL.

OCTOBER 25.—By the *Erie R. R.*=Eagle Pass, Texas:

Continental Rubber Company of New York 43,000

OCTOBER 26.—By the *New York Central R. R.*=Eagle Fass, Texas:

Continental Rubber Company of New York 50,000

AFRICANS.

By the *Eboe*=Far East:

Fred Stern & Co..... 11,200

By the *Aurania*=Liverpool:

Rubber Trading Co..... 11,200

CENTRALS.

OCTOBER 20.—By the *Curvello*=Ceara:

Hagemeyer Trading Co. (Negroheads)... 56,000

OCTOBER 29.—By the *Wagland*=Ceara:

Pell & Dumont (Negroheads)..... 43,700
Hagemeyer Trading Co..... 44,800

NOVEMBER 5.—By the *Sexaola*=South America:

W. R. Grace & Co..... 1,731

SCRAP.

OCTOBER 30.—By the *Wagland*=South America:

W. R. Grace & Co..... 3,630

CRUDE RUBBER ARRIVALS AT SEATTLE.

PLANTATIONS.

[Figured 135 pounds net to the case.]

TO AKRON, OHIO.

POUNDS.

OCTOBER 26.—By the *Hawaii Maru*=Yokohama:

The B. F. Goodrich Co..... 418,095
Goodyear Tire & Rubber Co... 143,100 561,195

OCTOBER 29.—By the *Calcutta Maru*=Yokohama:

J. T. Johnstone & Co..... 7,560

OCTOBER 30.—By the *Towa Maru*=Hongkong:

Goodyear Tire & Rubber Co..... 61,290

OCTOBER 30.—By the *Tamba Maru*=Calcutta:

Goodyear Tire & Rubber Co..... 7,560

NOVEMBER 5.—By the *Fushimi Maru*=Yokohama:

Goodyear Tire & Rubber Co..... 15,660

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

Goodyear Tire & Rubber Co..... 532,710

TO NEW YORK.

OCTOBER 26.—By the *Hawaii Maru*=Yokohama:

Charles T. Wilson Co., Inc.... 1,620
Rubber Trading Co..... 4,860
East Asiatic Co..... 2,025
J. T. Johnstone & Co..... 2,025
Robinson & Co..... 2,430
Arthur Meyer & Co..... 1,890
L. Littlejohn & Co..... 8,910 23,760

OCTOBER 30.—By the *Towa Maru*=Hongkong:

Rubber Trading Co..... 36,585
United States Rubber Co..... 233,685
Meyer & Brown..... 306,315
L. Littlejohn & Co..... 689,580
Edward Maurer & Co..... 214,515
William H. Stiles & Co..... 251,910
Fred Stern & Co..... 28,215
Lee Tire & Rubber Co..... 16,065
Hagemeyer Trading Co..... 6,615
Charles T. Wilson Co., Inc.... 54,270
Henderson & Korn..... 129,060
Goodyear Tire & Rubber Co... 12,150 1,978,965

NOVEMBER 12.—By the *Fuku Maru*=Kobe:

J. T. Steeb & Co..... 85,320

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

United States Rubber Co.....2,590,380
Meyer & Brown..... 90,450
Arthur Meyer & Co..... 41,715
J. T. Johnstone & Co..... 40,230
Henderson & Korn..... 509,895
L. Littlejohn & Co..... 228,285
East Asiatic Co..... 9,180
Aldens' Successors, Limited.... 65,070
Robinson & Co..... 142,425
Rubber Trading Co..... 23,895
Fred Stern & Co..... 47,520
Charles T. Wilson Co., Inc.... 193,050
Hagemeyer Brothers 15,120
H. R. Jefferds..... 7,290
Arnold & Zeiss..... 4,050
Frank B. Ross & Co..... 20,250
Robert Badenhop & Co..... 92,880
Peninsular Trading Co..... 40,635
Edward Maurer & Co..... 53,865 4,216,185

TO SEATTLE, WASHINGTON.

OCTOBER 26.—By the *Hawaii Maru*=Yokohama:

J. T. Johnstone & Co..... 4,860
Henderson & Korn..... 12,015
W. R. Grace & Co..... 34,425
Robinson & Co..... 9,315
Mitsui & Co., Limited..... 34,155 94,770

OCTOBER 29.—By the *Calcutta Maru*=Yokohama:

Goodyear Tire & Rubber Co..... 6,480

OCTOBER 30.—By the *Towa Maru*=Hong Kong:

Robinson & Co..... 43,200
Arnold & Zeiss..... 42,255
Fred Stern & Co..... 16,740
Arthur Meyer & Co..... 3,510 105,705

OCTOBER 30.—By the *Tamba Maru*=Calcutta:

H. B. M. Consul General..... 3,105

NOVEMBER 5.—By the *Fushimi Maru*=Yokohama:

Meyer & Brown..... 10,665

POUNDS.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

Henderson & Korn..... 33,615
J. T. Johnstone & Co..... 164,565
Goodyear Tire & Rubber Co.... 9,720
Aldens' Successors, Limited.... 13,625
Arthur Meyer & Co..... 12,825
Balfour, Guthrie & Co..... 557,820
The B. F. Goodrich Co..... 691,470
Robinson & Co..... 26,865
W. R. Grace & Co..... 105,840
East Asiatic Co..... 102,600
L. Littlejohn & Co..... 63,720
Fred Stern & Co..... 77,895
Firestone Tire & Rubber Co... 397,170
Arnold & Zeiss..... 104,220
Hood Rubber Co..... 15,525 2,377,475

TO MANSFIELD, OHIO.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

Jesse E. La Dow..... 135

TO SAN FRANCISCO, CALIFORNIA.

NOVEMBER 12.—By the *Fuku Maru*=Kobe:

Mitsui & Co., Limited..... 13,770

TO WATERTOWN, MASSACHUSETTS.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

Hood Rubber Co..... 43,875

BOWMANVILLE, CANADA.

OCTOBER 30.—By the *Towa Maru*=Hongkong:

Goodyear Tire & Rubber Co..... 22,140

TO VANCOUVER.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

Canadian Consolidated Rubber Co..... 80,325

TO MONTREAL, CANADA.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

Charles T. Wilson Co., Inc..... 8,100

TORONTO, CANADA.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

Dunlop Tire & Rubber Co..... 98,010

PONTIANAK.

NEW YORK.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

United Malaysian Rubber Co.—
Gutta Siak 121,500
Gutta untreated 148,500 270,000

TO SEATTLE.

NOVEMBER 12.—By the *Sachsen*, renamed *Chatahoochee*=Moji:

L. Littlejohn & Co. (Gutta jelutong).... 56,565

CRUDE RUBBER ARRIVALS AT SAN FRANCISCO.

PLANTATIONS.

POUNDS.

[Figured 135 pounds net to the case.]

OCTOBER 22.—By the *Hudson Maru*=Hongkong:

J. T. Johnstone & Co..... 171,315
W. R. Grace & Co..... 41,985
S. & G. Gump Co..... 135
Fred Stern & Co..... 1,890
Frank B. Ross..... 25,110
United States Rubber Co..... 108,000
The B. F. Goodrich Co..... 100,170
Goodyear Tire & Rubber Co.... 28,350 476,955

OCTOBER 24.—By the *Koningin der Nederlanden*=Soerabaia:

J. T. Johnstone & Co..... 19,845
William H. Stiles & Co..... 47,250
Henderson & Korn..... 88,695
Robinson & Co..... 60,210
L. Littlejohn & Co..... 8,775
Meyer & Brown..... 135,405
Arnold & Zeiss..... 145,665
H. B. M. Consul General..... 56,700
General Rubber Co..... 136,080
Joosten & Janssen..... 119,070
United Malaysian Rubber Co.. 22,950
Goodyear Tire & Rubber Co... 103,545
Goldman, Sacks & Co..... 9,450
Firestone Tire & Rubber Co.... 83,835 1,037,475

	Pounds.	
OCTOBER 31.—By the *Korea Maru*=Penang:		
J. T. Johnstone & Co.	163,890	
L. Littlejohn & Co.	2,970	
Robinson & Co.	9,855	
Fred Stern & Co.	3,510	
Rubber Trading Co.	1,755	
Charles T. Wilson Co., Inc.	65,340	
The B. F. Goodrich Co.	205,740	
Henderson & Korn	101,520	
Meyer & Brown	50,490	
Mansfield Tire & Rubber Co.	49,140	654,210
Shortshipped *Persia Maru:*		
J. T. Johnstone & Co.	135	
Goodyear Tire & Rubber Co.	135	
Robinson & Co.	270	
W. R. Grace & Co.	135	
Henderson & Korn	135	
L. Littlejohn & Co.	135	945
Shortshipped *Shinyo Maru:*		
The B. F. Goodrich Co.	405	
Goodyear Tire & Rubber Co.	270	
William H. Stiles & Co.	135	810
NOVEMBER 9.—By the *Colombia*=Hongkong:		
Henderson & Korn	112,455	
Arthur Meyer & Co.	2,700	
Arnold & Zeiss	22,410	
Robinson & Co.	15,390	
Goodyear Tire & Rubber Co.	2,025	
J. T. Johnstone	18,765	
L. Littlejohn & Co.	4,050	
Fred. Stern & Co.	8,100	185,895
NOVEMBER 12.—By the *Siberia Maru*=Hongkong:		
Henderson & Korn	14,040	
L. Littlejohn & Co.	19,980	
J. T. Johnstone & Co.	12,690	
Robinson & Co.	7,695	
The B. F. Goodrich Co.	3,915	
Mansfield Tire & Rubber Co.	1,080	
Goodyear Tire & Rubber Co.	106,380	
Arnold Karberg	135	
Aldens' Successors, Limited	3,510	
Fred. Stern & Co.	21,600	
Charles T. Wilson Co., Inc.	810	
Meyer & Brown	540	192,375
NOVEMBER 14.—By the *Ophir*=Batavia:		
H. B. M. Consul General	125,145	
Spreckels Brothers	21,060	
Harrison & Crosfield	13,770	
J. T. Johnstone & Co.	4,995	
Manhattan Rubber Co.	68,175	
Goodyear Tire & Rubber Co.	167,940	
Edward Maurer & Co.	79,380	
Joosten & Janssen	4,185	
General Rubber Co.	20,250	
Henderson & Korn	4,050	
L. Littlejohn & Co.	29,700	
MacDonald Sons	27,810	566,460
PONTIANAK.		
OCTOBER 22.—By the *Hudson Maru*=Hongkong:		
Otto Isenstein & Co. (gutta)		7,155
OCTOBER 24.—By the *Koningin der Nederlanden*=Soerabaia:		
Equitable Trust Co.		11,475

OTHER PACIFIC COAST ARRIVALS.

	Pounds.
SEPTEMBER 23.—By the *Louise Neilson*=Singapore:	
Charles T. Wilson Co., Inc.	224,000
Fred Stern & Co.	190,400
OCTOBER 7.—By the *Tokiwa Maru*=Singapore:	
General Rubber Co.	120,000
OCTOBER 8.—By the *Unkai Maru*=Far East:	
W. R. Grace & Co.	8,900
OCTOBER 15.—By the *Panama Maru*=Singapore:	
J. T. Johnstone & Co.	13,400
OCTOBER 17.—By the *Mexico Maru*=Far East:	
W. R. Grace & Co.	42,560
OCTOBER 19.—By the *Persia Maru*=Far East:	
Henderson & Korn	64,600
W. R. Grace & Co.	120,880
Fred Stern & Co.	49,280
OCTOBER 22.—By the *Hudson Maru*=Singapore:	
General Rubber Co.	142,000
W. R. Grace & Co.	56,980
Fred Stern & Co.	4,480
OCTOBER 25.—By the *Koningin der Nederlanden*=East:	
Arnold & Zeiss	122,000
Meyer & Brown	192,600
OCTOBER 26.—By the *Mayachi Maru*=Singapore:	
Rubber Trading Co.	40,320
Charles T. Wilson Co., Inc.	76,000
Fred Stern & Co.	51,520
OCTOBER 27.—By the *Teesta*=Singapore:	
General Rubber Co.	1,232,000
OCTOBER 30.—By the *Towa Maru*=Far East:	
Henderson & Korn	169,400
Meyer & Brown	353,700
Fred Stern & Co.	44,800
General Rubber Co.	140,000
Arnold & Zeiss	56,400
OCTOBER 31.—By the *Korea Maru*=Far East:	
Meyer & Brown	56,000
OCTOBER 31.—By the *Tamba Maru*=Singapore:	
Meyer & Brown	4,500
NOVEMBER 6.—By the *Fushima Maru*=Singapore:	
Meyer & Brown	4,500
NOVEMBER 7.—By the *Shinyo Maru*=Singapore:	
J. T. Johnstone & Co.	197,400
Charles T. Wilson Co., Inc.	42,560
NOVEMBER 9.—By the *Colombia*=East:	
Henderson & Korn	202,600
Arnold & Zeiss	38,900
Meyer & Brown	4,500
NOVEMBER 10.—By the *Nippon Maru*=Singapore:	
General Rubber Co.	1,501,800
Fred Stern & Co.	4,480
NOVEMBER 12.—By the *Sachsen*=Singapore:	
Henderson & Korn	915,200
General Rubber Co.	3,216,600
Arnold & Zeiss	175,000
Meyer & Brown	130,000
NOVEMBER 12.—By the *Vondel*=Far East:	
W. R. Grace & Co.	25,384
NOVEMBER 14.—By the *Tenyo Maru*=Singapore:	
J. T. Johnstone & Co.	52,000
NOVEMBER 15.—By the *Ophir*=East:	
Arnold & Zeiss	28,100
Meyer & Brown	67,200
NOVEMBER 21.—By the *Tjisondari*=East:	
Arnold & Zeiss	360,000
Henderson & Korn	125,200
NOVEMBER 22.—By the *Nichiyo Maru*=Singapore:	
Meyer & Brown	112,000
NOVEMBER 25.—By the *Senator*=Singapore:	
Meyer & Brown	9,000
By the *Hawaii Maru*=Far East:	
Fred Stern & Co.	15,680
W. R. Grace & Co.	43,049
By the *Siberia Maru*=Far East:	
Henderson & Korn	25,000
Fred Stern & Co.	8,960
By the *Chicago Maru*=Singapore:	
Rubber Trading Co.	13,440
By the *Calcutta Maru*=Singapore:	
Rubber Trading Co.	17,920
By the *China*=Singapore:	
Rubber Trading Co.	67,200
By the *Bankoko Maru*=Far East:	
Hagemeyer Trading Co.	6,720

CUSTOM HOUSE STATISTICS.

PORT OF BOSTON, MASS.—OCTOBER, 1917.

IMPORTS:	Pounds.	Value.
India rubber	237,833	$134,810
Rubber scrap	72,522	4,674
Manufactures of india rubber	.....	1,180
Total	.....	$140,664
EXPORTS:		
India rubber boots—*pairs:*		
To—		
England	27,571	$78,599
Canada	2,736	9,531
St. Pierre	48	144
Newfoundland	2,034	4,536
Totals	32,389	$92,810
India rubber shoes—*pairs:*		
England	25,338	$11,364
Canada	48	48
Newfoundland	890	502
Cuba	34	76
Totals	26,310	$11,990
Automobile tires:		
Canada	.....	$88
Newfoundland	.....	26
Total	.....	$114
Belting, hose and packing:		
England	.....	$254
Canada	.....	231
Newfoundland	.....	72
Cuba	.....	675
Total	.....	$1,232
Druggists' sundries:		
Canada	.....	$549
Cuba	.....	1,820
Total	.....	$2,369
Other manufactures of india rubber:		
To—		
Italy	.....	$835
England	.....	116
Canada	.....	351
Costa Rica	.....	13
Newfoundland	.....	109
Cuba	.....	1,504
Total	.....	$2,928

PORT OF CHICAGO, ILLINOIS—OCTOBER, 1917.

IMPORTS:	Pounds.	Value.
Manufactures of india rubber	.....	$380

PORT OF CLEVELAND, OHIO—OCTOBER, 1917.

IMPORTS:	Pounds.	Value.
India rubber	696,151	$393,612
Gutta jelutong (Pontianak)	242,178	17,905
Totals	938,329	$411,517

PORT OF THE DISTRICT OF MICHIGAN, MICH.—SEPTEMBER, 1917.

IMPORTS:	Pounds.	Value.
India rubber	405,360	$262,374
Rubber scrap	30,000	1,400
Manufactures of india rubber	.....	249
Total	.....	$264,023
EXPORTS:		
Rubber scrap	819	$103
India rubber boots—*pairs*	5,720	16,257
Automobile tires	.....	43,447
Other rubber tires	.....	127
Belting, hose, etc.	.....	7,537
All other manufactures of india rubber	.....	12,213
Total	.....	$79,684

PORT OF NEW ORLEANS, LA.—OCTOBER, 1917.

IMPORTS:	Pounds.	Value.
India rubber	38,684	$22,097

PORT OF NEW YORK—SEPTEMBER, 1917.

IMPORTS:	Pounds.	Value.
India rubber	15,789,145	$8,595,965
Balata	193,898	92,318
Gutta percha	118,806	10,995
Gutta jelutong (Pontianak)	1,464,674	68,037
Rubber scrap	1,072,808	83,461
Manufactures of india rubber	.....	35,950
Total	.....	$8,886,326
EXPORTS:		
India rubber	34,398	$19,189
Balata	64,611	42,456
India rubber boots—*pairs*	134,801	412,968
India rubber shoes—*pairs*	33,462	19,275
Automobile tires	.....	879,499
Other rubber tires	.....	22,095
Belting, hose, etc.	.....	219,336
All other manufactures of india rubber	.....	500,736
Total	.....	$2,115,554

PORT OF PHILADELPHIA, PA.—OCTOBER, 1917.

EXPORTS:	Pounds.	Value.
Automobile tires	.....	$162
All other manufactures of india rubber	.....	6,161
Total	.....	$6,323

PORT OF SAN FRANCISCO, CAL.—SEPTEMBER, 1917.

IMPORTS:	Pounds.	Value.
India rubber	6,316,056	$3,991,056
Gutta percha	87,000	10,736
Gutta Siak	157,000	19,432
Manufactures of india rubber	.....	233
Total	.....	$4,021,457
EXPORTS:		
India rubber boots—*pairs*	2,315	$3,016
India rubber shoes—*pairs*	19,161	11,775
Automobile tires	.....	126,869
Other rubber tires	.....	14,314
Belting, hose, etc.	.....	32,479
All other manufactures of india rubber	.....	22,937
Total	.....	$211,390

PORTS OF SEATTLE AND TACOMA, WASHINGTON—SEPTEMBER, 1917.

IMPORTS:	Pounds.	Value.
India rubber	5,794,927	$3,424,937
Manufactures of india rubber	.....	13
Totals	.....	$3,424,950
EXPORTS:		
India rubber boots—*pairs*	1,031	$2,253
India rubber shoes—*pairs*	12,386	9,314
Automobile tires	.....	6,221
Other rubber tires	.....	459
Belting, hose, etc.	.....	4,265
All other manufactures of india rubber	.....	6,940
Total	.....	$29,452

RUBBER STATISTICS FOR THE UNITED STATES.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—*free:*	August, 1917. Pounds.	Value.
India rubber:		
From—		
France	101,881	$39,242
United Kingdom	6,097,618	3,676,166
Central America	68,235	28,734
Mexico	52,691	29,310
Brazil	2,728,898	992,279
Peru	1,174,208	522,256
Other South America	171,850	72,390
British East Indies	23,937,966	14,448,935
Dutch East Indies	5,681,450	3,523,573
Other countries	1,160,339	729,713
Totals	41,175,136	$24,057,598
Balata	354,498	$187,847
Guayule gum	600,051	210,845
Gutta jelutong	1,631,756	93,173
Gutta percha	112,059	15,301
Totals	43,873,500	$24,564,764
Rubber scrap	1,827,674	131,813
Totals, unmanufactured	45,701,174	$24,696,577
Chicle ..... *dutiable*	153,051	$80,798
MANUFACTURED—*dutiable:*		
Manufactures of india rubber and gutta percha		$80,835
India rubber substitutes		$21,876

EXPORTS OF DOMESTIC MERCHANDISE.

MANUFACTURED—	August, 1917. Pounds.	Value.
Automobile tires:		
To—		
France		$768
United Kingdom		8,073
Canada		189,822
Mexico		48,954
Cuba		143,508
Argentina		148,793
Brazil		23,381
British India		8,091
Dutch East Indies		47,141
Australia		45,294
New Zealand		58,102
Philippine Islands		50,147
British South Africa		95,752
Other countries		103,925
Total		$971,731
All other tires		59,365
Belting, hose and packing		369,669
Rubber boots ..... *pairs*	83,784	262,984
Rubber shoes ..... *pairs*	140,552	93,877
Druggists' sundries		69,926
Scrap and old rubber	114,886	11,488
Reclaimed rubber	232,090	40,012
Other rubber manufactures		430,668
Total manufactured		$2,304,740
Fountain pens ..... *number*	29,241	$19,641

EXPORTS OF FOREIGN MERCHANDISE

UNMANUFACTURED—	August, 1917. Pounds.	Value.
Balata		
Gutta jelutong		
Gutta percha		
India rubber	242,576	$144,966
Rubber scrap and refuse	16,480	896
Totals, unmanufactured	259,056	$145,862
MANUFACTURED—		
India rubber		$48

EXPORTS OF RUBBER GOODS TO NON-CONTIGUOUS TERRITORIES OF THE UNITED STATES.

MANUFACTURED—	August, 1917. Pounds.	Value.
To—		
Alaska:		
Belting, hose and packing		$19,348
Boots and shoes ..... *pairs*	11,111	34,036
Other rubber goods		6,844
Total		$60,228
MANUFACTURED—		
To—		
Hawaii:		
Belting, hose and packing		$7,779
Automobile tires		64,418
Other tires		7,155
Other rubber goods		21,700
Total		$101,052
To—		
Philippine Islands:		
Belting, hose and packing		$6,169
Boots and shoes ..... *pairs*	64,856	39,837
Tires		61,735
Other rubber goods		14,675
Total		$122,416
To—		
Porto Rico:		
Belting, hose and packing		$3,284
Automobile tires		28,677
Other tires		1,054
Other rubber goods		7,488
Total		$40,503

RUBBER STATISTICS FOR THE DOMINION OF CANADA.

The import and export figures by countries usually published in this table are withheld by the Canadian Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—*free:*	August, 1917. Pounds.	Value.
Rubber and gutta percha, crude caoutchouc or india rubber	948,170	$557,841
Rubber, recovered	398,434	64,138
Hard rubber in sheets and rods	2,915	2,322
Rubber substitute	19,989	2,947
Rubber, powdered, and rubber or gutta percha waste	257,360	16,043
Chicle	153,379	52,281
Totals	1,780,247	$695,572

MANUFACTURED—*dutiable:*	General Tariff. Value.	Preferential Tariff. Value.
Boots and shoes	$19,531	$9,406
Belting	7,516	.....
Waterproof clothing	11,327	24,760
Hose, lined with rubber	11,135	.....
Mats and matting	1,412	37
Packing	7,922	14
Tires of rubber for all vehicles	242,939	1,392
Rubber cement and all manufactures of india rubber and gutta percha—N. O. P.	86,372	17,951
Hard rubber, unfinished, in tubes for fountain pens	1,679	.....
Webbing—over one inch wide	8,101	370
Totals	$397,934	$53,930

EXPORTS OF DOMESTIC AND FOREIGN MERCHANDISE.

MANUFACTURED—	August, 1917. Produce of Canada. Value.	Re-exports of Foreign Goods. Value.
Belting	$497	$129
Hose	9,913	112
Boots and shoes	25,065	.....
Tires	59,657	2,195
Waste	8,595	.....
All other N. O. P.	2,383	459,735
Chicle	79,215	.....
Totals	$185,325	$462,171

UNITED KINGDOM RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

UNMANUFACTURED—	September, 1917. Pounds.	£.
Crude rubber	10,533,300	1,294,030
Waste and reclaimed rubber	48,000	1,437
Gutta percha	331,632	53,967
Totals	10,912,932	1,349,434
MANUFACTURED—		
Boots and shoes ..*doz. pairs*	7,419	13,869
Insulated wire	.....	1,309
Automobile tires and tubes	.....	53,758
Motorcycle tires and tubes	.....	380
Cycle tires and tubes	.....	720
Tires not specified	.....	1,312
Total	.....	71,348

EXPORTS OF DOMESTIC MERCHANDISE.

UNMANUFACTURED—	September, 1917. Pounds.	£.
Waste and reclaimed rubber	1,069,000	24,079
MANUFACTURED—		
Apparel, waterproofed	.....	60,976
Boots and shoes ..*doz. pairs*	8,824	9,322
Insulated wire	.....	3,959
Automobile tires and tubes	.....	114,923
Motorcycle tires and tubes	.....	12,452
Cycle tires and tubes	.....	32,323
Tires not specified	.....	8,552
Manufactures not specified	.....	106,839
Total	.....	349,346

EXPORTS—FOREIGN AND COLONIAL.

UNMANUFACTURED—	September, 1917. Pounds.	£.
Crude rubber	4,558,100	577,225
Gutta percha	27,104	4,037
Totals	4,585,204	581,262
MANUFACTURED—		
Apparel, waterproofed	.....	40
Boots and shoes ..*doz. pairs*	19	84
Insulated wire	.....	9,382
Automobile tires and tubes	.....	23,049
Motorcycle tires and tubes	.....	393
Total	.....	32,948

LONDON AND LIVERPOOL RUBBER STATISTICS.

The import and export figures by countries usually published in this table are withheld by the British Government.

IMPORTS.

UNMANUFACTURED—	September, 1917. Pounds.	£
Crude rubber:		
At—		
London	4,874,100	602,349
Liverpool	5,659,200	691,681
Totals	10,533,300	1,294,030
Waste and reclaimed rubber:		
At—		
London	12,400	685
*Liverpool	800	16
Totals	13,200	701

EXPORTS.

Waste and reclaimed rubber, manufactures of the United Kingdom:		
From—		
London	728,900	12,198
Liverpool	361,800	8,442
Totals	1,090,700	20,640

REEXPORTS.

Crude rubber:		
From—		
London	3,403,000	437,355
Liverpool	807,300	106,180
Totals	4,210,300	543,535

*Deduct 2,500 pounds, value £69, to amend March, 1917, figures.

RUBBER STATISTICS FOR ITALY.

IMPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Five Months Ended May, 1917.	
UNMANUFACTURED—	POUNDS.	LIRE.
India rubber and gutta percha —raw and reclaimed:		
From—		
Great Britain	1,015,740	.....
Straits Settlements	130,460	.....
African French Colony	119,240	
Belgian Congo	160,600	.....
Brazil	2,869,680	.....
Other countries	1,089,660	.....
Totals	5,385,380	22,031,100
Rubber scrap	1,032,460	469,300
MANUFACTURED—		
India rubber and gutta percha —threads:		
From—		
Great Britain	12,540	.....
United States	16,720	.....
Other countries	1,320	.....
Totals	30,580	278,000
India rubber and gutta percha sheets:		
Cut sheets	440	3,500
Elastic fabric	220	500
Hard rubber	9,460	37,410
India rubber and gutta percha —tubes:		
From cut sheets	220	1,850
Elastic fabric	8,140	25,900
Other forms	1,320	4,800
Belting	42,460	154,400
Rubber coated fabrics..*pieces*	33,660	156,825
Other fabrics:		
From—		
Great Britain	5,500	.....
Other countries	24,860	.....
Totals	30,360	179,400
Boots and shoes—*pairs:*		
From—		
France	5,709	.....
United States	8,369	.....
Other countries	98	.....
Totals	14,176	92,144
Elastic webbing:		
From—		
France	16,940	.....
Great Britain	5,280	.....
Other countries	2,640	.....
Totals	24,860	192,100
Clothing and articles for travel	880	9,600
Articles not specified:		
From cut sheets	7,260	72,600
Fabrics:		
From—		
France	3,960	.....
Great Britain	54,120	.....
Other countries	7,260	.....
Totals	65,340	282,150
Tires and tubes:		
From—		
France	339,020	.....
Great Britain	194,040	.....
Other countries	14,520	.....
Totals	547,580	3,882,840
Other rubber manufactures:		
From—		
France	67,100	.....
Great Britain	116,380	.....
United States	42,680	.....
Other countries	880	.....
Totals	227,040	825,600
Total Imports	.....	28,700,019

EXPORTS OF CRUDE AND MANUFACTURED RUBBER.

	Five Months Ended May, 1917.	
UNMANUFACTURED—	POUNDS.	LIRE.
India rubber and gutta percha —raw and reclaimed:		
To—		
Spain	72,600	.....
United States	375,100	.....
Totals	447,700	610,500
MANUFACTURED—		
India rubber and gutta percha threads:		
To—		
France	7,920	.....
Great Britain	6,100	.....
Spain	5,940	.....
Switzerland	3,520	.....
Argentina	3,520	.....
Other countries	880	.....
Totals	27,940	241,300
India rubber and gutta percha —sheets:		
Cut sheets	880	6,800
Elastic fabric	3,080	8,400
Insulated wire	220	350
Hard rubber	14,080	54,400
India rubber and gutta percha —tubes:		
From cut sheet	220	1,900
Elastic fabric	17,380	51,350
Other forms	34,980	119,250
Belting	2,200	7,200
Rubber coated fabrics..*pieces*	21,560	98,000
Elastic webbing:		
To—		
France	1,320	.....
Greece	4,180	.....
Spain	6,820	.....
Switzerland	25,520	.....
Egypt	7,260	.....
Argentina	29,700	.....
Brazil	63,360	.....
Chile	7,040	.....
Cuba	9,020	.....
Other countries	13,200	.....
Totals	167,420	1,217,600
Clothing and articles for travel	5,720	59,800
Articles not specified:		
From cut sheets:		
To—		
Great Britain	660	.....
Argentina	3,960	.....
Uruguay	1,760	.....
Other countries	220	.....
Totals	6,600	60,000
Fabrics	16,280	66,600
Tires and tubes:		
To—		
France	331,760	.....
Great Britain	1,355,420	.....
Switzerland	1,540	.....
India and Ceylon	227,920	.....
Australia	440	.....
Argentina	179,080	.....
Brazil	165,000	.....
Other countries	378,180	.....
Totals	2,639,340	12,416,895
Other rubber manufactures:		
To—		
France	25,300	.....
Great Britain	25,960	.....
Spain	2,420	.....
Switzerland	11,220	.....
Egypt	1,320	.....
Argentina	53,900	.....
Brazil	22,220	.....
Uruguay	9,020	.....
Other countries	20,460	.....
Totals	171,820	702,900
Total Exports	.....	15,723,245

The nominal value of a lire is $0.193.

THE MARKET FOR COTTON AND OTHER FABRICS.

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NEW YORK.

AMERICAN cotton has steadily advanced during the month just past, having recorded the highest prices paid for middling spot cotton since 1866. A strong buying movement, in which American and Liverpool interests have figured prominently, was the cause of the advance. The consuming trade has been insistently calling for cotton and thereby creating sharp competition among buyers for the available supply, which is altogether insufficient for the heavy demand. That the present movement is based on consumption and not speculation is generally conceded and is supported by heavy government buying and the buying of futures by the mills. Middling spot cotton sold for 28.75 cents, and December futures were quoted 27.15 cents on November 1. On November 26, middling spot was quoted 31.25 cents and December futures, 30.28 cents.

EGYPTIAN COTTON. The report that the British government will arrange to supply the Allies with much needed cotton has instilled a little hope in the Egyptian cotton situation, which is undoubtedly disquieting. There are still 7,500 bales to come, otherwise there is nothing new to report. Mail advices from Alexandria indicate a firm market and steadily increasing stocks. There is no change in the shipping situation. Crop reports continue to be satisfactory and the estimate of a final production of 6,250,000 cantars is still holding good.

Prices continue high and firm, a good tire grade of Sakellarides was quoted 53 cents, and Uppers 41½ cents, during the last week of the month.

SEA ISLAND COTTON. The British order prohibiting exports of Sea Island cotton from the West Indies will not affect the American market, as practically all of this cotton is usually shipped to England.

In the southern markets there has been a fairly active demand for Georgias and Floridas during the month, at prices ranging from 70 to 75 cents. Carolinas have been comparatively quiet as there is no inclination to sell, owing to the small stocks offered. Prices during the month have ranged from 71 to 74 cents for the various grades. New York prices are about 1 cent a pound higher.

AIRPLANE AND BALLOON FABRICS. It is reported that 20,000 bales of Sea Island cotton were purchased late last month for government account to be used in the manufacture of airplane and balloon fabrics.

MECHANICAL DUCK. The War Industries Board of the Council of National Defense has ordered all the manufacturers of regular duck not to take civilian orders, and the government has requisitioned 50 per cent of the 1918 production. Rubber manufacturers, however, are in the habit of contracting for supplies and, with few exceptions, will not be affected by this unusual situation. Prices have advanced, hose and belting duck being now 60 cents a pound.

SHEETINGS, OSNABURGS, CARRIAGE CLOTH DUCK AND DRILLS. These fabrics are in such demand that the question of prices is a secondary consideration. Government business is the potent factor in the present market situation. Prices in the entire list have advanced.

TIRE FABRICS. Tire fabric consumers have apparently been awaiting the outcome of the Egyptian situation, for the market during November has been very quiet and quite easy. Prices on standard Sea Island building fabric by the square yard are now $1.65 to $1.70. Combed Egyptians are $1.25 to $1.30, and carded $1.15 to $1.20. Combed Peelers are $1.05 to $1.10, and carded Peelers $.85 to $.90.

RAINCOAT FABRICS.—Raincoat makers are busy making slickers for the army and all civilian business has been refused. Contracts recently awarded are for deliveries up to the last few months of 1918.

NEW YORK QUOTATIONS.

NOVEMBER 27, 1917.

Prices subject to change without notice.

Airplane and Balloon Fabrics:			
Wamsutta, S. A. I. L. No. 1, 40-inch	yard	*$0.52½	@
No. 4, 38½-inch		*.50	@
for gas masks		*.42½	@
Wool Stockinettes—52-inch:			
A—14-ounce	yard	*1.75	@
B—14-ounce		*2.25	@
C—14-ounce		*2.50	@
Cotton Stockinettes—52-inch:			
D—14-ounce	yard	*.85	@ .90
E—11½-ounce		*.60	@ .65
F—14-ounce		*.85	@ .90
G— 8-ounce		*.75	@ .80
H—11-ounce		*.70	@ .85
I— 9-ounce		*.60	@ .65
Colors—white, black, blue, brown.			
Knitaback Stockinette	pound	*1.60	@ 1.65
Tire Fabrics:			
17½-ounce Sea Island, combed	square yard	1.65	@ 1.70
17½-ounce Egyptian, combed		1.25	@ 1.30
17½-ounce Egyptian, carded		1.15	@ 1.20
17½-ounce Peelers, combed		1.05	@ 1.10
17½-ounce Peelers, carded		.85	@ .90
Sheetings:			
40-inch 2.35-yard	yard	.22½	@
40-inch 2.50-yard		.22	@
40-inch 2.70-yard		.19	@
40-inch 2.85-yard		.18¼	@
40-inch 3.15-yard		.18	@
Osnaburgs:			
40-inch 2.35-yard	yard	.22	@
40-inch 2.48-yard		.21	@
37½-inch 2.42-yard		.21	@
Mechanical Ducks:			
Hose	pound	.60	@
Belting		.60	@
Carriage Cloth Duck:			
38-inch 2.00-yard enameling duck	yard	.27	@
38-inch 1.74-yard		.31	@
72-inch 16.66-ounce		.59	@
72-inch 17-21-ounce		.64	@
Drills:			
38-inch 2.00-yard	yard	.27	@
40-inch 2.47-yard		.22½	@
52-inch 1.90-yard		.29	@
52-inch 1.95-yard		.28½	@
60-inch 1.52-yard		.37	@
Imported Woolen Fabrics Specially Prepared for Rubberizing—Plain and Fancies:			
63-inch, 3¼ to 7½ ounces	yard	.75	@ 2.00
36-inch, 2¾ to 5 ounces		.50	@ 1.20
Imported Plaid Lining (Union and Cotton):			
63-inch, 2 to 4 ounces	yard	.55	@ 1.15
36-inch, 2 to 4 ounces		.42½	@ .85
Domestic Worsted Fabrics:			
36-inch, 4½ to 8 ounces	yard	.45	@ 1.10
Domestic Woven Plain Linings (Cotton):			
36-inch, 3¾ to 5 ounces	yard	.13½	@ .27½
Raincoat Cloth (Cotton):			
Bombazine 64 x 60 water repellent	yard	.15¾	@
60 x 48 not water repellent		.13	@
Twills 64 x 72		.17¾	@ .18
64 x 102		.23	@ .25
Tweed		.31	@ .35
Tweed, printed		.11	@ .16
Plaids 60 x 48		.13½	@
56 x 44		.12¼	@
Surface prints 60 x 48		.14½	@
64 x 60		.16	@
Repp		.20	@ .24
Burlaps:			
32— 7½-ounce	100 yards	*9.30	@
40— 7½-ounce		19.40	@
40— 8-ounce		19.50	@
40—10-ounce		20.50	@
40—10½-ounce		*16.75	@
45— 7½-ounce		18.60	@
45— 8-ounce		*14.00	@
45— 9½-ounce		*15.15	@15.25
48—10-ounce		26.00	@

*Nominal.

TIRE
FABRICS

JENCKES
SPINNING
COMPANY

PAWTUCKET
RHODE ISLAND

SEA ISLAND CROP MOVEMENT.

FROM AUGUST 1, 1917, TO NOVEMBER 2, 1917.

		Receipts. 1917-18.	1916-17.
Stock on hand, August 1, 1917—			
Savannah, 1,043; Charleston, 1	bales	1,044	2,508
Received at Savannah (gross)		6,461	25,097
Received at Charleston		1,436	477
Received at Jacksonville		6,899	14,807
Totals		15,840	42,889
Less exports		10,149	30,791
Stock November 2, 1917—			
Savannah, 4,714; Charleston, 982		5,691	12,098
Crop in sight at all ports to date		14,746	40,381

EXPORTS.

From—	To Great Britain.	Continent.	Northern Mills.	Southern Mills.	Totals.
Savannah	bales	.....	1,934	861	2,795
Charleston	.....	.....	455	.....	455
Jacksonville	.....	.....	6,899	.....	6,899
Totals	.....	.....	9,288	861	10,149
1916-17	765	120	28,103	1,803	30,791
	Dec. 765	Dec. 120	Dec. 18,815	Dec. 942	Dec. 20,642

(Compiled by John Malloch & Co., Savannah, Georgia.)

THE MARKET FOR CHEMICALS AND COMPOUNDING INGREDIENTS

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NEW YORK.

THE base metals have been inactive during November, with the exception of lead, which was quite active during the first week of the month. Prices advanced, however, under the selling pressure that resulted, but later the movement subsided, leaving the market quiet and firm.

On November 26, pig lead quotations were 6¼ cents for New York, and 6.17½ cents for East St. Louis delivery. Spelter exhibited a little strength at one time during the month, but the market became quiet and weaker as the month progressed. Prices, November 26, were 8 to 8⅛ cents, New York, and 7¾ to 8 cents, East St. Louis, spot deliveries. The antimony metal market has been generally quiet; the ruling New York price for large quantities was 13½ to 14 cents on November 26.

The demand for rubber chemicals was fairly active and the many inquiries reported indicated considerable interest in future contracts. Producers are cautious, however, on accepting future contracts covering long periods, owing to the uncertain condition of the base metal market. Lead pigments have been quiet, yet strong, due to the position of pig lead; however, the uncertainty of government requirements has had a tendency to unsettle the market.

ACCELERATORS. Thiocarbanilide and Paraphenylenediamine are the newest accelerators to be developed for the rubber trade.

CADMIUM SULPHIDE. The yellow, orange and medium shades, while scarce, and renewal of supply rather uncertain, are quoted at $2.15 to $2.20 per pound for the orange and medium shades according to quantity.

BLACK HYPO.—This is difficult to obtain, there being no supply available, and prices are largely nominal. However, quotations have been made subject to supply being available from abroad at 39 to 42 cents per pound for pure goods.

CORN OIL.—Both the refined and crude product have been in active demand at nominal prices during the month. Scarcity of raw material is the cause.

DRY COLORS. While the market has been quite strong, moderate price changes in certain grades were recorded last month. Ultramarine blues were scarce and held at firm prices, and the same may be said of the browns. Small stocks account for the steady position of all black colors. Chinese vermilion has not been on the market since the war began and is being substituted by English quicksilver vermilion.

LITHOPONE. New prices for the next quarter in 1918 have been announced, on the basis of 6½ cents in carloads and 6¾ cents for less than carloads, f. o. b. shipping point.

ZINC OXIDE. No new prices have been announced as yet, but the tendency of the conditions ruling the present market is for higher prices. Spot stocks were variously quoted but the demand was light, and the market undertone for all positions has been steady.

NEW YORK QUOTATIONS.

NOVEMBER 27, 1917.

Subject to change without notice.

Accelerene	lb.	*2.62	@	
Acetone (drums)	lb.	.35	@	.36
Acid, acetic, 28 per cent (bbls.)	lb.	.05¾	@	
glacial, 99 per cent (carboys)	lb.	.35	@	
cresylic, 97-99 per cent, straw color	gal.	1.10	@	
95 per cent, dark	gal.	1.00	@	
muriatic, 20 degrees	lb.	.02¼	@	
nitric, 40 degrees	lb.	.07¾	@	
sulphuric, 66 degrees	lb.	.02	@	
Aldehyde ammonia (crystals)	lb.	1.00	@	
Aluminum flake (carloads, bbls.)	ton	24.00	@	29.00
(carloads, sacks)	ton	22.00	@	
Ammonia carbonate, powdered	lb.	.12	@	
lumps	lb.	.11½	@	
Antimony, crimson, sulphuret of (casks)	**lb.**	**.40**	**@**	**.50**
crimson, "Magmetco"	**lb.**	**.30**	**@**	
crimson, "Mephisto" (casks)	**lb.**	**.52**	**@**	
Antimony, golden, sulphuret of	lb.	.25	@	.40
golden, "Magmetco"	**lb.**	**.45**	**@**	
golden, "Mephisto" (casks)	**lb.**	**.28**	**@**	
golden, sulphuret, States brand, 16-17 per cent.	lb.	*.28	@	
red sulphuret, States brand	lb.	*.25	@	
vermilion sulphuret	**lb.**	**.55**	**@**	
Arsenic, red sulphide	lb.	.45½	@	
Asbestine (bags)	ton	20.00	@	22.50
Asbestos (bags)	ton	*35.00	@	50.00
Barium, carbonate, precipitated	lb.	*.04½	@	.04¾
Barium sulphide, precipitated	lb.	*.04	@	
Barytes, pure white	ton	18.85	@	
off color	ton	15.50	@	
Basofor	ton	80.00	@	
Benzol, pure	gal.	.45	@	.55
90 per cent	gal.	.40	@	.45
Beta-Naphthol	lb.	.65	@	.70
Blanc fixe	lb.	.04	@	
Bone ash	lb.	.06	@	
Bone black, powdered	lb.	.08	@	
granulated	lb.	.10	@	
Brown oxide of iron	lb.	*.01½	@	.02
sienna, raw and burnt	lb.	.05	@	.12
umber, raw and burnt	lb.	.05	@	.06
ochre, domestic	lb.	*.02	@	.03
imported	lb.	*.04	@	.04½
Cadmium tri-sulphate (f. o. b. London)	lb.	*2.68	@	
sulphide, yellow	lb.	2.15	@	2.20
Cantella gum	lb.	.43	@	
Carbon, bisulphide (drums)	lb.	.06½	@	.07
black (cases)	lb.	.21	@	
tetrachloride (drums)	lb.	.15¼	@	
Caustic soda, 76 per cent	lb.	.07⅞	@	.08½
Chalk, precipitated, extra light	lb.	.05	@	.05½
precipitated, heavy	lb.	.04	@	.04½
China clay, domestic (powdered)	ton	12.00	@	20.00
imported (powdered)	ton	17.50	@	36.00
Chrome, green	lb.	.14½	@	.35
yellow	lb.	.22	@	.24
Cobalt blue	lb.	.35	@	
Cotton linters, clean mill run	lb.	*.06	@	
Excellerex	lb.	*.85	@	
Fossil flour	ton	60.00	@	
Gas black (cases)	lb.	.21	@	
Gilsonite	ton	42.50	@	
Glue, high grade	lb.	.35	@	.45
medium	lb.	.30	@	.35
low grade	lb.	.25	@	.28
Glycerine, C. P. (drums)	lb.	.70	@	
Graphite, flake (400 pound bbl.)	lb.	.25	@	
amorphous	lb.	.07	@	
Green oxide of chromium (casks)	lb.	.80	@	.85
Ground glass FF. (bbls.)	lb.	*.02¾	@	
Hexamethylene Tetramine (powdered)	lb.	1.00	@	
Indian red, reduced grades	lb.	.07	@	.08
pure bright	lb.	.12	@	.14
Infusorial earth, powdered	ton	60.00	@	
bolted	ton	65.00	@	
Iron oxide, red, reduced grades	lb.	.04	@	
red, pure, bright	lb.	.12	@	.14
red, excelsior	lb.	*.18	@	
Ivory, black	lb.	.16	@	.30
Lampblack	lb.	.12	@	
Lead, dry red	lb.	.10	@	
sublimed blue	lb.	.08½	@	
sublimed white	lb.	.08½	@	
white, basic carbonate	lb.	.09	@	
white, basic sulphate	lb.	.08½	@	.09
black hyposulphite (Black Hypo)	lb.	.39	@	.42
Lime, flour	ton	25.00	@	
Liquid rubber	lb.	.12	@	
Litharge, domestic	lb.	.06½	@	.10½
English	lb.	.13½	@	
sublimed	lb.	.09¼	@	
Lithopone, imported	lb.	.10½	@	
domestic	lb.	.06½	@	.06¾
Beckton white (carloads)	lb.	.06½	@	.07
Rubber makers' white	lb.	.06½	@	.07
Magnesium, carbonate, 150 mesh	lb.	.11	@	.12
calcined, heavy	lb.	.06	@	
oxide, 120 mesh	lb.	.75	@	.80
oxide, 120 mesh	lb.	*.04	@	
Magnesite, calcined, powdered	ton	40.00	@	65.00
Mica, powdered	lb.	.05	@	
Mineral rubber, M. R. X	ton	100.00	@	
Genasco (carloads)	ton	50.00	@	
Pioneer	ton	48.00	@	50.00
Richmond Brand	lb.	.03	@	
No. 64 Brand	ton	40.00	@	
Refined Elaterite	lb.	.08	@	
Raven M. R.	lb.	.03½	@	

Naphtha, stove gasoline (steel bbls.)	gal.	.24	@	
73@76 degrees (steel bbls.)	gal.	.33	@	
68@70 degrees (steel bbls.)	gal.	.28	@	
V. M. & P. (steel bbls.)	gal.	.23	@	
Oil, aniline	lb.	.26	@	.30
corn, refined Argo (carloads)	cwt.	*20.11	@	
linseed, raw (carloads)	gal.	1.22	@	1.27
palm	lb.	.23	@	.25
paraffin	gal.	*.27	@	.28
pine, steam distilled	gal.	*.47	@	
pine tar	gal.	*.28	@	
rapeseed, blown	gal.	*1.65	@	1.70
rosin	gal.	.35	@	.65
tar (cases)	gal.	.27	@	.34
soluble aniline, yellow, orange	lb.	2.50	@	
black	lb.	1.25	@	
red	lb.	2.50	@	3.00
Orange mineral, domestic	lb.	.13	@	
Oxymony	lb.	.15	@	
Paragol soft and medium (carloads)	cwt.	15.56	@	
hard	cwt.	15.06	@	
Paraphenylenediamine	lb.	3.50	@	
Petrolatum	lb.	.04¼	@	.05
Petroleum grease	lb.	.04½	@	.04¾
Pine tar retort	bbl.	16.00	@	
kiln	gal.	*2.90	@	
Pitch, Burgundy	lb.	*.05½	@	.06
coal tar	lb.	*.01	@	
pipe tar	lb.	*.02¼	@	
Plaster of paris	bbl.	2.00	@	3.00
Prussian blue	lb.	.75	@	.80
Pumice stone, powdered (bbls.)	lb.	.03½	@	.04
Reclaimed rubber, Standard shoe reclaim	lb.	.14½	@	
Standard tire reclaim	lb.	.19	@	
Resin, Pontianak, refined	lb.			
granulated	lb.			
fused	lb.			
Rosin, K	bbl.	7.80	@	
Rotten stone, powdered	lb.	.02½	@	.04½
Rubber black	lb.	.06	@	
Rubber substitute, black	lb.	.10½	@	.16
white	lb.	.13½	@	.24
brown	lb.	.17	@	.24
brown factice	lb.	.09	@	.23
white factice	lb.	.13	@	.25
Rubhide	lb.	*.38	@	
Shellac, fine orange	lb.	.62	@	.65
Silex (silica)	ton	20.00	@	36.00
Soapstone, powdered	ton	10.00	@	12.50
Starch, powdered corn (carload, bbls.)	cwt.	5.84	@	
(carload, bags)	cwt.	5.71	@	
Sulphur chloride (drums)	lb.	*.06¼	@	.07½
Sulphur, flour, velvet brand (carloads)	cwt.	3.95	@	
pure soft	cwt.	3.95	@	
Talc, American	ton	15.00	@	20.00
French	ton	*40.00	@	45.00
Tar, coal	bbl.	*4.25	@	
Tensilite, accelerator	lb.	.90	@	
Thiocarbanilide	lb.	*.50	@	
Toluol, pure	gal.	*1.75	@	2.00
Tripoli earth, powdered	ton	60.00	@	
bolted	ton	65.00	@	
Turpentine, pure gum spirits	gal.	.54½	@	
wood	gal.	.44	@	.45
Venice	lb.	*.08	@	
Tyre-lith	ton	90.00	@	
Ultramarine blue	lb.	.23	@	.40
Velocite, accelerator	lb.	.85	@	
Vermilion	lb.	*.65	@	.80
Chinese	lb.	*2.50	@	
English	lb.	1.55	@	
Wax, beeswax, white	lb.	.60	@	.65
ceresin, white	lb.	.12½	@	.20
carnauba	lb.	.60	@	.65
ozokerite, black	lb.	.75	@	
green	lb.	*.85	@	.90
montan	lb.	*.35	@	.45
paraffin, refined 118/120 m. p. (cases)	lb.	.10½	@	
124/126 m. p. (cases)	lb.	.08¼	@	.08½
128/130 m. p. (cases)	lb.	.11¼	@	
133/135 m. p. (cases)	lb.	.13½	@	
Whiting, Alba	cwt.	1.00	@	1.25
commercial	cwt.	1.25	@	
gilders	cwt.	1.35	@	
Paris, white, American	cwt.	1.50	@	
English cliffstone	cwt.	1.75	@	2.00
Wood pulp XXX.	ton	*35.00	@	
Yellow ochre	lb.	.04	@	
india rubber	lb.	*1.50	@	
Zinc oxide, American process, horsehead brand (less carload)				
"XX red" f. o. b. factory	lb.	.10½	@	
"special" f. o. b. factory	lb.	.11	@	
French process, red seal f. o. b. factory	lb.	.14½	@	
green seal f. o. b. factory	lb.	.14¾	@	
white seal f. o. b. factory	lb.	.15¼	@	
Zinc sulphide, pure	lb.	None		

* Nominal.

THE MARKET FOR RUBBER SCRAP.

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NEW YORK.

ONE quiet week after the other has characterized the rubber scrap market for the past month. In fact, inactivity seems to have become a habit with both the crude and rubber scrap markets for some time past. There is no doubt that the manufacturers have been well supplied with ample stocks of both crude and reclaimed but there is a logical end to all things, and the long expected buying movement should soon materialize.

That certain sorts of scrap rubber have arrived in limited quantities is apparent from the demand for boots and shoes, which have received more attention than any of the other sorts. While few changes in value were noticeable during the month, the lack of business has virtually weakened the market and prices on all grades have shown a downward tendency and in many instances quotations are nominal.

BOOTS AND SHOES. Routine business in limited lots at prices averaging from 9¼ to 9½ cents delivered were reported, but 9⅜ cents was considered the market for large lots. Arctics, both trimmed and untrimmed, have been featureless and unchanged. The recent United States government order for 600,000 pairs of arctics for the navy is an indication of the large amount of rubber footwear that will eventually be scrapped before the war is over.

TIRES. Very little movement was noticed in tires during the month, in fact, an entire absence of business was reported in some quarters. Consumers have not appeared to be at all interested in the present range of prices, and considering the stocks in sight the market has been remarkably firm. Prices are lower and the market weaker than a month ago.

INNER TUBES. All tubes were quiet and dull and very little business has resulted. Attractive offers for No. 1 tubes were reported, but the volume of actual trading has been insufficient to make a market, and prices have declined.

MECHANICALS. These grades have been similarly weakened by the conditions controlling all the other rubber scrap materials. The demand for hose appears to have subsided and a weaker tone was noticeable in the entire list during the last week of the month. Prices have reflected the generally downward tendency of the rubber scrap market.

STATISTICS. The London and Liverpool imports of waste and reclaimed rubber for September were 13,200 pounds, value £701, compared with 28,800 pounds, value £873, for August. Exports of waste and reclaimed rubber, manufactures of the United Kingdom, for September were 1,090,700 pounds, value £20,640, compared with 781,500 pounds, value £15,658, for August.

NEW YORK QUOTATIONS FOR CARLOAD LOTS DELIVERED.

NOVEMBER 27, 1917.

Prices subject to change without notice.

	Per Pound.		
Boots and shoes	$0.09¼	@	$0.09⅜
Trimmed arctics	.07⅛	@	
Untrimmed arctics	.06½	@	
White tires, Goodrich and Goodyear	.06¾	@	.07
Auto tires, standard white	.06¼	@	
standard mixed	.05½	@	.05¾
stripped, unguaranteed	.04½	@	
Auto peelings, No. 1	.09½	@	
No. 2	.08	@	

Inner tubes, No. 1, old packing	.22½@	
new packing	.25½@	
No. 2	.12 @	
red	.12 @	
Irony tires	.01½@	.02
Bicycle tires	.04¾@	.05
Solid tires	.06 @	
Clean truck tires	.06¾@	
White scrap, No. 1	.14 @	
No. 2	.10 @	
Red scrap, No. 1	.09 @	
No. 2	.07 @	
Mixed black scrap, No. 1	.05 @	
No. 2	.04 @	
Rubber car springs	.05 @	
Horse shoe pads	.04½@	.04¾
Matting and packings	.01½@	
Garden hose	.02¼@	
Air brake hose	.06 @	
Cotton fire hose	.02¼@	.02¾
Large hose	.02¼@	
Hard rubber scrap, No. 1, bright fracture	.26 @	.27
Battery jars (black compound)	.03 @	
Insulated wire stripping, free from fiber	.04 @	
Rubber heels	.04¼@	

THE EFFECT OF HEAT ON TIRE INFLATION.

To controvert the theory that hot weather causes heating of tires, making deflation necessary to allow for the consequent increased air-pressure, was the object of the following tests recently made by The B. F. Goodrich Co.

A 34 by 4 inch tire was inflated to 70 pounds, at a temperature of 40 degrees F., when it was gradually heated to 110 degress F. At this point, the reading of the air pressure indicated 78.4 pounds, or an increase of 8.4 pounds, which is not at all dangerous.

TESTING AIR PRESSURE IN THE LABORATORY.

A more practical test was then conducted with a 34 by 4 inch tire, inflated to 70 pounds, at a temperature of 70 degrees F. The tire was then driven at a rapid pace through hot sand, to ascertain how much it would heat, and the average was found to be about 100 degrees F. Then the tire was heated to this temperature in the laboratory and the air pressure was found to be 75.3 pounds, an increase of but 5.3 pounds. Thus it was shown in both tests that unusual heat does not result in an increase of air pressure dangerous to tires.

THE DEVELOPMENT OF THE RUBBER TRADE IN RUSSIA.

The manufacture of rubber articles in Russia was undertaken at a comparatively early date, having been commenced towards the middle of the previous century. Thinking men saw that the use of rubber shoes would solve the problem of protecting the feet in the long and severe winters. And this circumstance was almost solely responsible for the founding of the rubber manufacturing industry.

In the early years it was not a conspicuous success and seemed destined to die out for want of sufficient backing. However, in the seventies it began to develop rapidly, assuming such proportions that in the last years before the war not only was the vast home demand met, but large quantities of rubber goods, especially boots and shoes, were exported.

Thus, during each of the last two pre-war years, rubber goods to an average of approximately 6,000,000 rubles (a ruble equals $0.515) were exported, of which total 3,000,000 rubles represented rubber overshoes.

The following table gives the values in rubles of the total production for different years during the period 1844 to 1913, and illustrates the rapid growth of this industry in Russia.

1845	R. 132,000	1910	R. 76,000,000
1869	1,481,000	1912	92,000,000
1895	25,000,000	1913	100,000,000
1908	65,000,000		

Taking Russian conditions into consideration, and also the fact that the raw materials for the rubber trade had to be imported, this development is truly phenomenal. As a matter of fact, no other trade in Russia requiring foreign products has ever progressed so wonderfully.

Official statistics for the years 1910-1912 show the following values for articles produced:

	Rubles.		
	1910.	1911.	1912.
Over-shoes	54,700,000	55,800,000	67,000,000
Vehicle tires	4,200,000	3,500,000	4,200,000
Bicycle tires	3,400,000	4,200,000	4,600,000
Clothing, waterproof	1,300,000	1,400,000	1,500,000
Technical goods	6,800,000	6,400,000	7,300,000
Surgical goods	1,300,000	1,100,000	1,300,000
Toys	740,000	780,000	790,000
Other manufactures of india rubber	3,500,000	3,900,000	4,600,000
	75,940,000	77,080,000	91,290,000

These quantities were supplemented by imports amounting to about two million rubles, of which at least 85 per cent came from Germany.

A NEW RACING SHOE.

A shoe especially adapted for running contests and sports of that character and for general outdoor exercises is made of tan or khaki duck, with black rubber soles which are furnished with a series of large, square-edged bosses, supplemented by a semi-circular rim around the heel, all tending to give firm,

non-slipping tread on any surface likely to be encountered in these sports. The upper is of the sport shoe lace pattern, an adaptation of the blucher cut, the opening reaching down to the base of the toes, and is closed by a lacing through ten pairs of eyelets. [The Kaufman Rubber Co., Limited, Kitchener, Canada.]

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